

FIRST LOOK: TAMIYA'S NEW EGRESS

July 1990

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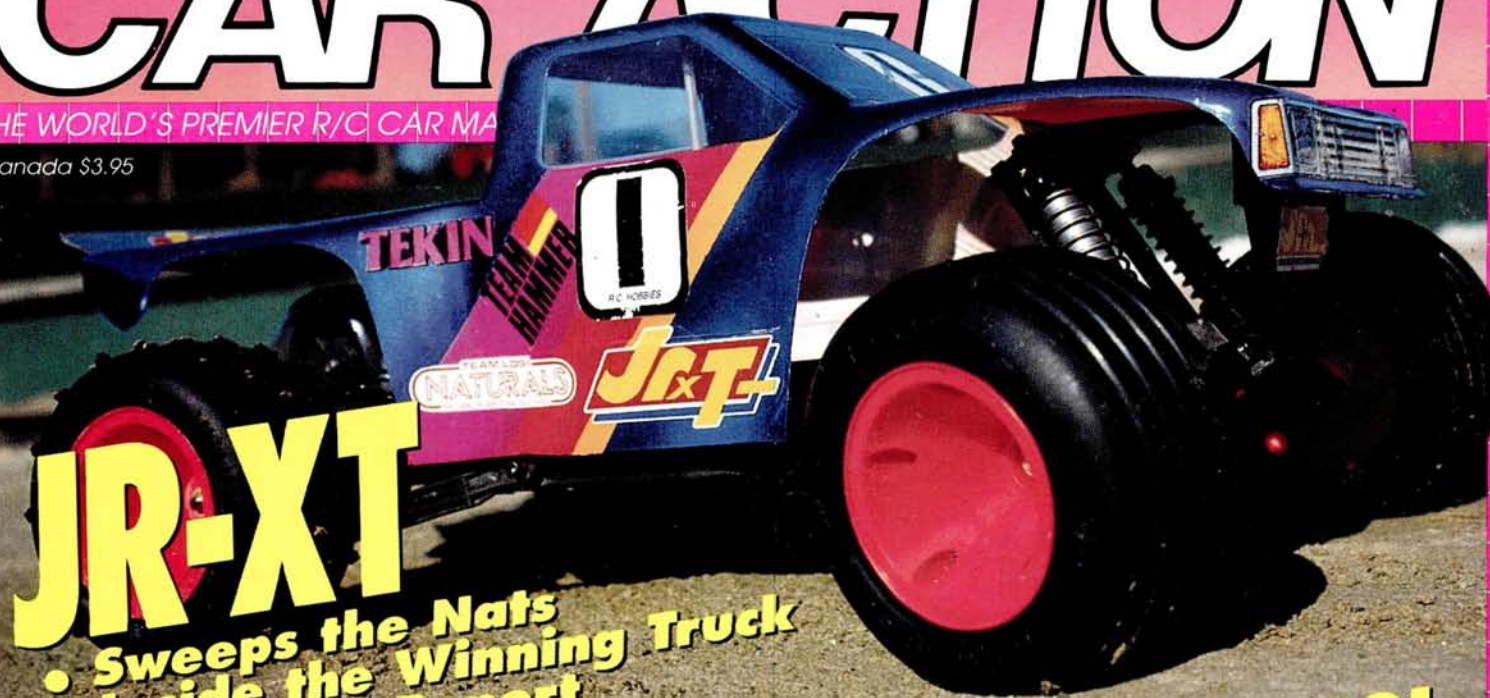
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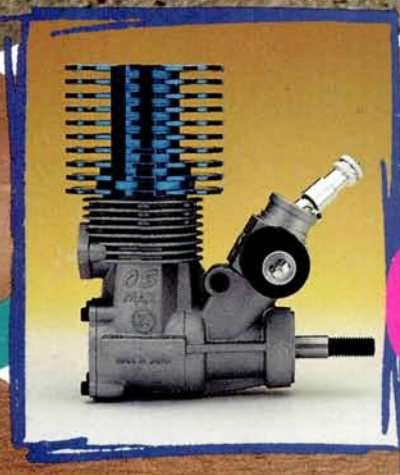
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SLINGSHOT



ROAR
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ON THE COVER—Top right: Tamiya's 4WD Egress caught standing still. Top: close-up of Kyle Reed's Nats-winning JR-XT. Inset: O.S.'s hot fuel-powered EX-B buggy engine. Center and bottom: Turbo Burns action from Atlanta, GA. (All photos by Steve Pond.)

Team Losi JR-XT, page 97.



EDITORIAL

by RICH HEMSTREET

IS GAS RACING the craze of the future? Will R/C racers be more concerned about how much nitro to use than how many winds of wire they should have? Kyosho is now promoting gas off-road racing, so we sent Steve "Smitty" Pond down to Atlanta, GA, to report on the Kyosho 1/8-scale Off-Road Challenge. In Europe and Japan, 1/8-scale off-road racing is popular, but very few have raced these machines in the U.S. I've seen these cars racing competitively only once—on a dirt-oval track with stock-car bodies in a support race for a Midwest 1/8-scale Sprint Car event.

Will 1/8-scale off-road racing catch on? Its biggest challenge is the need to come up with a set of rules that will effectively keep a lid on costs and technology. Establishing a stock-engine class that doesn't permit any engine tampering is one way to go. To further cut engine costs, the fuel for this class could be handed out at the track—just like NASCAR does in Winston Cup racing. Also, a minimum-weight rule that specifies a weight that's high enough to discourage the use of special materials and fragile cars will help keep costs down.

Check out Steve's race coverage in this issue. These cars are awesome in full color, and Smitty reports that they're even better up close!



The first ROAR Truck Nationals took place recently in Las Vegas, NV. Rick Houle was on hand to cover the event for *Car Action*, but during the following week, someone stole his camera and all his film of the event. We had to scramble, but thanks to John Adams and Ron Melton, we came up with photos of the race. Congratulations to the four new National champs: Kyle Reed, Jack Johnson, Tom Clark and Mike Dunn.

We also got our hands on Reed's winning JR-XT to give you a close-up view. Surprisingly, there aren't any real "trick" parts to be found—it's just a well-executed truck.

Our second "Home-Built Project" features Bob Nelson's land and sea craft, Riptide. This scratch-built, six-wheel amphibian is just the thing for those who can't choose between cars and boats.

If you've never considered a boat, don't miss the Great Planes Marine Stinger review in this issue. Wally David parked his car and got his feet wet with the Stinger. If you want to know more about these fast electric boats (or gas, or sail), look for our sister publication, *Radio Control Boat Modeler*. You never can tell when a change of pace will be just what you need!

At the recent RCHTA Trade Show in Pomona, CA, *Car Action* held a drawing for \$500, along with a number of 5-year, 3-year and 1-year subscriptions. Chris Husmann of Gardena, CA, walked away with the grand prize. Way to go, Chris!

Also in this issue you'll find reviews of Tamiya's Egress, Kyosho's dirt-oval Slingshot, Team Losi's JR-XT and Associated's RC10L. Bob Gagne puts the Bullet Racing RC-X2 chassis through its paces, while Bill Henning turns his mild-mannered Mud Blaster into the wild Master Blaster. I give you a quick look at Competition Electronics' Linear Turbocharger and John Rist scopes-out Futaba's new MC 116 speed control.

That's all I have room for this month. Until next time, keep it shiny-side up! ■

Radio Control CAR ACTION

Group Publisher
LOUIS V. DeFRANCESCO, JR.

Publisher
DR. LOUIS V. DeFRANCESCO

Associate Publisher
YVONNE M. MICIK

Senior Editor
RICH HEMSTREET

Associate Editors
STEVE POND
WALLY DAVID

Junior Associate
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Copy Director
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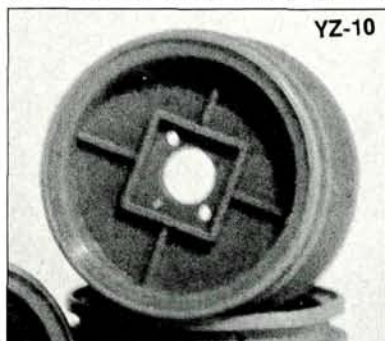
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LETTERS

We welcome your comments and suggestions. Letters should be addressed to "Letters," Radio Control Car Action, 251 Danbury Road, Wilton, CT 06897. Letters may be edited for clarity and brevity. We regret that, owing to the tremendous numbers of letters we receive, we cannot respond to every one.

MONSTER FLOAT

I've owned an R/C car for about 2 years, and I want to get a monster truck. I thought about a conversion kit, but it doesn't appeal to me. I've looked at real monster trucks, like the Clod Buster and the High Roller, but I'd like one that can float. I'm open to suggestions. I love the mag, dudes. Keep up the good work!

SCOTT BUSH

Scott, if you're looking for a true monster truck, the Tamiya Clod Buster and the MRP High Roller are the "big boys." I've seen both float, although we don't recommend it. (If you do head for the water, be sure to waterproof your radio gear.) To compete against these two trucks, Kyosho is about to release a dual-motor 4WD—the USA-1. It will have tires that are the same size as the Clod's, so it will probably float. Be sure to check out Bob Nelson's floating "Home-Built Project" in this issue; it's a six-wheeler called "Riptide!"

WD

HE'LL BE BACK!

Whatever happened to the Budget Racer series?

GABE STIDHAM
Knoxville, TN

In case anyone else missed it, in his March '90 Editorial, Rich Hemstreet mentioned that Dick Brinton injured his back in a car accident a while ago. It has been some time, Gabe, but Dick's getting better, and we expect to see the return of "Budget Racer" in the next issue!

WD

BYE-BYE BRUISER

I'm stuck! Did Tamiya discontinue the Bruiser? Lately, I've noticed fewer ads! Please do a Track Report (if it hasn't been discontinued).

I want to compliment you on the totally excellent mag!! I'm 12 years old and have

had R/C cars for 3 years. Please print this letter, or I'll disown you—just joking.

ERIC WEISSHAAR
Wichita, KS

Eric, the Bruiser was discontinued, and that's why you don't see it. We did a Track Report on it way back in the Winter '86 issue of Car Action. I'm glad I won't be disowned; I'd hate to go through life that way!

WD

MAXIMUM CLOD CLARIFICATION

This letter is in response to Bill O'Brien's "Maximum Clod" article in your April '90 issue.

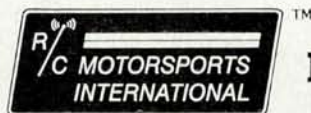
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ZIRA VASSALLO
President, Custom Chrome Products,
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Livonia, MI

Zira, I bow to your response. The comment in the article was actually part of a longer sentence that mentioned collisions, and to those of us who live in New York, the term "flaking off" even refers to cob-

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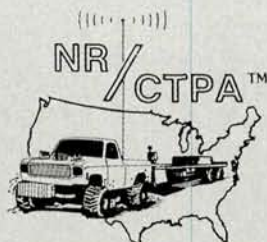
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SANITY

blestones that fall off bridges! Indeed, the Max Clod took quite a beating (I found sand in the exhaust stacks), and it lost only a minor amount of chrome, despite the many crashes and rolls it suffered. BO

I agree and disagree with the biased article in your April '90 issue (page 93) about concours. Let's remember that these are scale models and that detail is as important as speed. I agree that it's wrong for racers to build a body (or have someone else build it for them) just for concours. If the painter wants the credit, he should put his initials somewhere inconspicuous on the car. If a person wants to detail, let him, but let him race the body entered in concours, not another one.

I disagree with stand-off concours. It's to your advantage in concours if you can minutely detail. A trophy in concours shouldn't go to someone who uses \$3.50 decals. Cars that look like the real thing are great, but don't brush-off creativity.

BRYON ALTERGOTT
St. Charles, IL

Bryon, I'm surprised yours is the only letter we've received about that sidebar. I expected more responses, but maybe people really don't care that much about concours—perhaps because, in many instances, it has become a scale model competition that's out of the reach of most racers. These aren't supposed to be scale models; scale models are static, plastic kits from Revell, Testors and Monogram that sit up on your mantle. We're talking about race cars!

I have nothing against creativity with regard to "best paint"; I love sharp paint jobs! My point was that if you have a true concours category, the cars should look like existing racers.

You also missed the whole point about entering bodies painted by others. I don't think people who paint professionally care about the credit; they're in it for the money. If you allow purchased paint jobs

(Continued on page 10)

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LETTERS

(Continued from page 9)

in concours, average racers can't afford to compete. You asked why someone who uses decals that cost \$3.50 should win. I ask you, "Why should someone who spent \$150 on a pre-painted body win?"

Let's get things under control. Since it costs more and more to be competitive, let's retain some sanity in concours. It would be nice to keep the concours competition in the hands of racers. Notice I said racers, not modelers.

WD

SHEDDING SOME LIGHT

We noticed our company name, *Light-speed*, was misspelled in your March issue and just wanted to bring it to your attention. In the winners' chart on page 44, it said that Jeff Irish placed 6th in the Modified A-Main at the *Car Action* Weekend at Lake Whippoorwill using a "Litespeed" motor! It's a minor mistake, but we thought it should be set straight. We love your magazine—keep up the good work.

MARK LOWRIE
Fort Worth, TX

Mark, thanks for your letter. There are two companies, and this causes a lot of confusion. Your company, Lightspeed, of Fort Worth, TX, makes racing motors and batteries. Litespeed, of Spokane, WA, makes heat-sink motor mounts, and other R/C accessories. Sorry for the mix-up.

WD

REVVED-UP READER

I noticed a lot of bellyaching in the letters in the May issue. Are these people for real? Who cares about Bruce Triplett's race results except Bruce Triplett? As one of the 99.9 percent of amateur racers, I couldn't care less! I subscribe to your mag, and I understand that you can't print everything.

Some people take this sport too seriously. I race at Vandalia, IL, on a carpet track. I hardly ever win, but I have fun!

Isn't that what R/C is all about?! No offense, Bruce, but lighten up! Please print this letter so that all the "serious racers" can benefit from it. I think you people are doing a great job! Keep up the good work.

ROCK L. ALLEN
Pana, IL

Thanks for the comments, Rock. I agree that a lot of people take R/C racing too seriously and forget how much fun it is. In club and local race settings, these "serious" racers frequently dominate. They even hesitate to give new drivers a separate class in which to race, whether it's called "stock" or "novice!" Keep having fun, Rock, and while we're at it, let's try to help the others lighten up!

RH

KEEP ON TWEAKIN'!

I enjoy your magazine, and I like to read the letters. In the May issue, I couldn't help but notice that there were an awful lot of complaints about your magazine. In my opinion, it's a "10." Keep up the great work!

When will we see the new RC10L in a Track Report? I have one, but I can't seem to get it to hook-up like it should. I'm not sure what to do with the tweak screws when I get to the track. I hope you can help.

ERIC ELLIS
Montgomery, AL

Eric, this is your lucky issue! You'll find not only an RC10L track report, but also a Project 10L article! Between the two, there should be enough information to get your 10L dialed-in to almost any track!

Tweak screws help you tune your car to specific racing conditions. If you're racing on a roadcourse, adjust the screws so that when you lift the front of the car with a razor blade, all the wheels rise off the table at the same time. If one wheel lifts before the others, simply tighten the screw on the opposite side. For oval racing, tighten the outside tweak screw if the

car is pushing, and tighten the inside one if it's spinning out.

WD

A LESSON IN SHARING

I'm disappointed with something I read in the February issue of *Car Action*. The "pros," and the companies that sponsor them, have done it! Many of the products they use on their cars today won't be seen on the shelves for six months! I realize that it takes time to get things into production and out to the public, but let's look at the '89 Worlds in Australia.

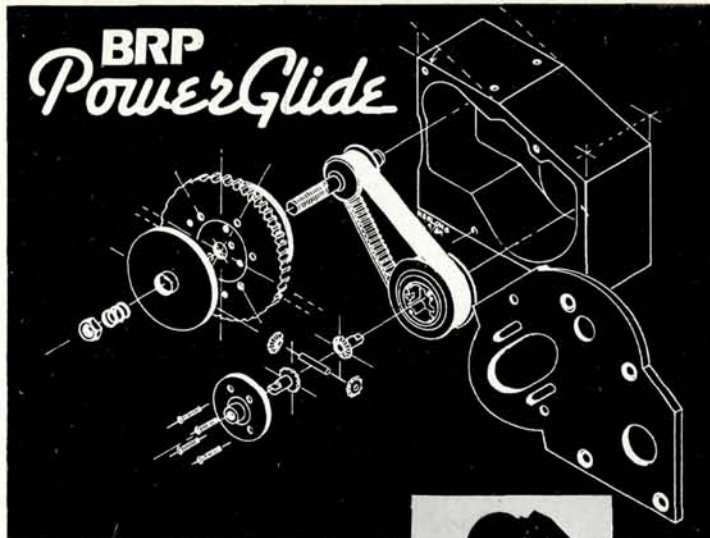
The Yokomo team brought with them from Japan a surplus of oversize rims and tires that supposedly gave better traction at St. Ives, where the race was held. They also brought a top-secret 2WD car that dominated. "Nothing wrong with that," you say? Perhaps, but how about this: the Yokomo team neglected to tell anyone about their rim/tire combo. They also kept their "Stealth" 2WD cars secret, for fear someone might "steal" their technology. The Yokomo team went one giant (maybe ridiculous) step further and took soil samples of the St. Ives track back to Japan so that team members could practice on an *exact replica* of the track!

Some say that it's in the spirit of competition to try any technology that puts you ahead of the pack. I say that technology's great, but we can't let the sport go beyond the reach of "rising stars" who don't have unlimited funds. How about sharing some of those deep, dark secrets?! That way, no racer, or group of racers, would have an advantage, races would be a lot closer, and everyone would have more fun!

Local racers have the right idea. We don't hide our cars to keep other racers from figuring out our "speed secrets." In fact, we share our ideas so that everyone can benefit from what we've learned. What a great philosophy!

This letter isn't totally negative. My heartiest congratulations go to the winners (and those who *tried* to win) at the

(Continued on page 12)



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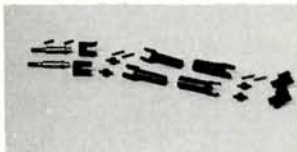
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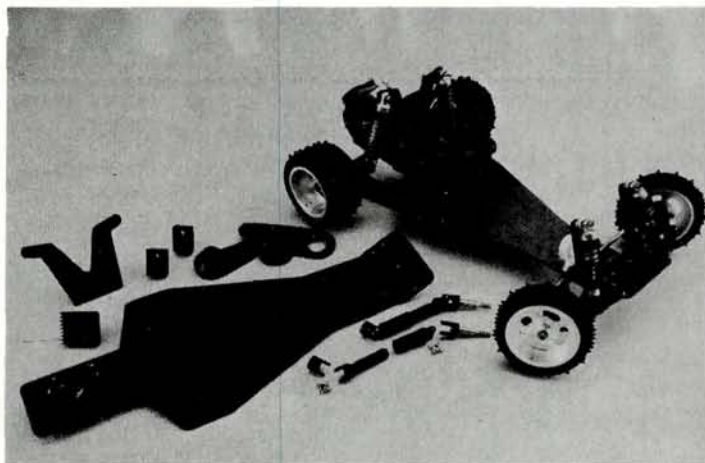
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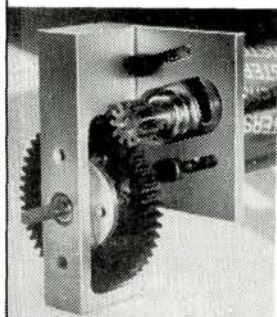
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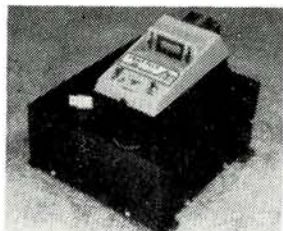
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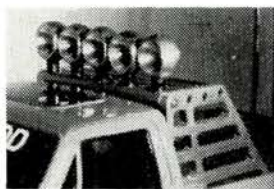
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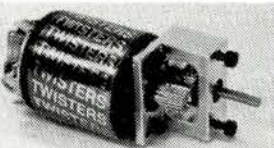
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LETTERS

(Continued from page 11)

Worlds. Obviously, their hard work and commitment paid off. I hope to read more letters relating to this topic. I'd like to know how others feel.

Mike Hahn

Helena, MT

Mike, thanks for writing! The problem at the Worlds wasn't that manufacturers tried hard to win, or that they brought experimental equipment to get the upper hand. The problem was the sanctioning body's lack of rules. IFMAR never specified the limitations on 1/10-scale wheel sizes, so somebody could have run 3-inch-diameter wheels if they wanted to.

Although the Yokomo wheels were oversize compared with what has been used on 1/10-scale off-road cars in the past, they were within the rules at the Worlds. Associated won the 2WD championship with their secret "Stealth" car (as we referred to it in our race coverage). This was also within the rules, and I don't think there's any reason to forbid it, except in stock or production-type racing classes.

You're right about the sportsmanship exhibited at many local tracks, and I hope this attitude will spread throughout the sport. When racers share their tricks, it raises the level of competition, and everybody in the club improves. Local racers will soon attend regional and national championships and find out they can be competitive at those levels!

Although the Worlds is an unusual event because only 120 racers compete and most are factory-supported, at the Nationals, you'll find that most manufacturers are willing to help unsponsored drivers make their cars run better—just ask!

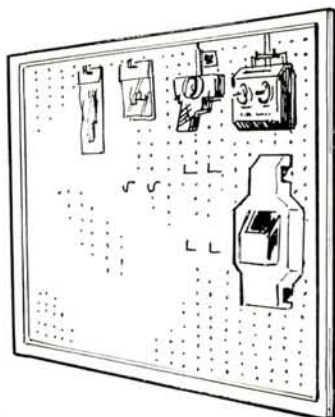
RH

WHERE TO WRITE TO US

If you're writing to us (and we'd love to hear from you), please be sure to address your letters to "Letters," Radio Control Car Action, 251 Danbury Road, Wilton, CT 06897. Only subscription orders and inquiries are handled by our Customer Service Department in Mount Morris, IL; other mail addressed there must be forwarded to us in Connecticut, and this leads to long delays.

PIT TIPS

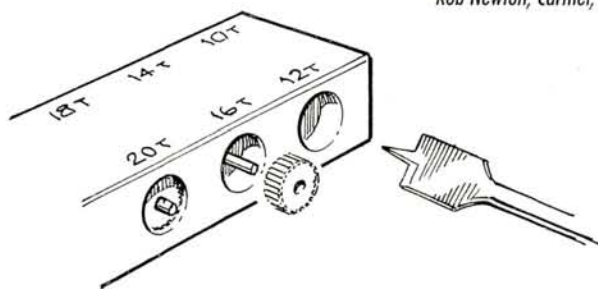
by JIM NEWMAN



PEGBOARD STORAGE

When our contributor's bench became cluttered with cars, etc., he mounted this pegboard on the wall above. Hooks and other useful fittings are readily available from your hardware store, so hanging cars, accessories and other race paraphernalia is no problem.

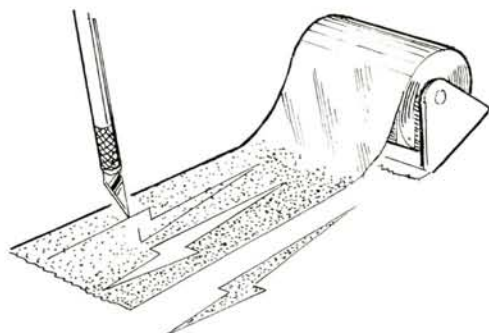
Rob Newton, Carmel, IN



PINION CADDY

This is an improvement on an idea published some time ago. Use a Speed Bore wood drill to make flat-bottom holes in the side of a wooden block, then drill all the way through to accommodate a suitable music-wire pin. Now the teeth on your spare pinions are totally protected because they're recessed in the block. They can be retained with model airplane wheel collars or rubber bands.

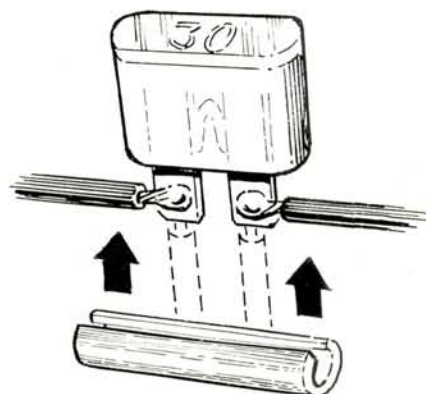
Douglas T. LaGrow, Dallas, TX



HOMEMADE TRIM STRIPE

Lay a strip of 3M frosted parcel tape on a piece of glass, and spray it with your chosen paint. When it dries, cut trim stripes or flashes using a sharp hobby knife. The trims are easy to position: swab the car's body with a little soapy water, then slide the stripe into position before "squeezegeeing" the water away.

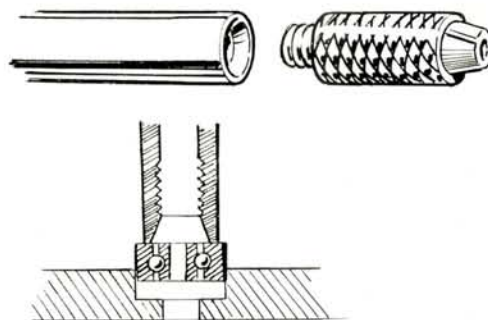
Alec Leung, Arlington, MA



NEATER FUSE INSTALLATION

On some speed controllers, a fuse must be soldered into the lead as shown by the dotted lines. Randy found that his wiring wouldn't lie neatly in his car, so he resoldered the leads as shown here. To guard against short circuits, he split a piece of gas model fuel line and applied it over the connections.

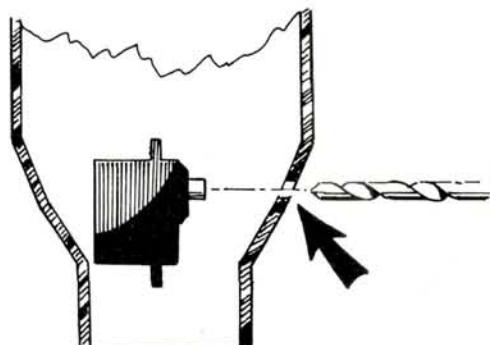
Randy Link, Hutchinson, KS



BEARING PRESS

To press in new bearings, Charles discovered that, after removing the collet from his no. 2 X-Acto knife, the handle was exactly the right diameter to fit nicely on the outer track of the bearing, so that the bearings weren't stressed by pressing on the inner track. Now he's able to squarely press in new bearings without damaging the fragile balls.

Charles Jacob, Rocky Ford, CO



RC10 SERVO-ARM ACCESS

Here's a quick way to access the servo-arm retaining screw: carefully mark and drill a suitable hole in the side of the aluminum tub. The hole should be just large enough to accept the screwdriver. Now you can remove the servo arm without first removing the servo.

Clint Brackman, Salem, VA

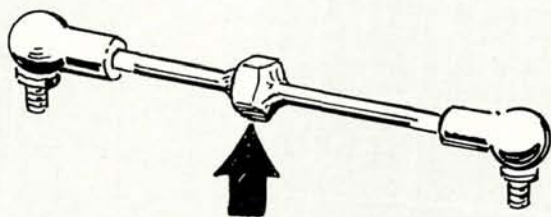
PIT TIPS



DYE STRAINER & STORAGE

Cut a 2-liter soda bottle as shown, then drill a number of small holes in the cap. Put the cap back onto the bottle, which you'll find fits perfectly into the top of an empty milk jug. After dyeing plastic parts, carefully tip the dye into the funnel, from which the parts can be retrieved without difficulty. The dye can be stored in the jug for future use. No muss; no fuss!

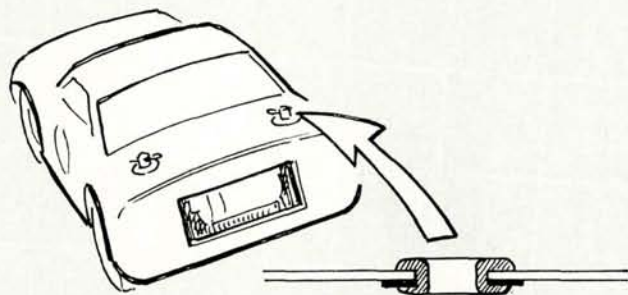
Larry Jumper, Colby, KS



TIE-ROD ADJUSTER

Tamiya tie rods can be difficult to adjust without removing them from the ball links. A small nut soldered onto the rod makes them easier to adjust.

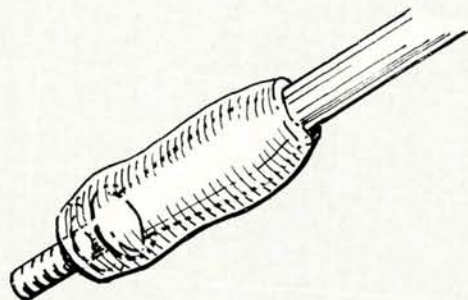
Harold & Scott Clithero, Mississauga, Ontario



CRACK PREVENTION

When cracks appeared near the body-mount holes, Ron bought some eyelets and fitted them to the body. Since then, he hasn't had any cracks in the plastic. (Eyelet kits and punches are available from craft stores.)

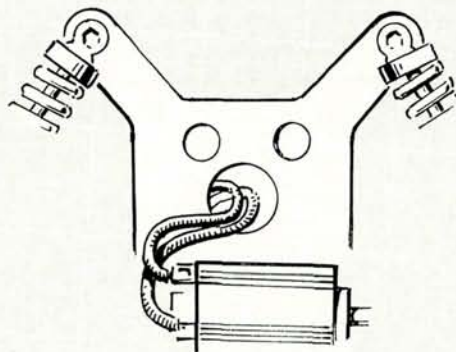
Ron Gould, Vandalia, IL



HANDS-FREE SCREW HOLDER

A piece of rubber fuel line on your screwdriver will hold screws in place until you're able to start them in the threads. This is especially convenient in hard-to-reach places.

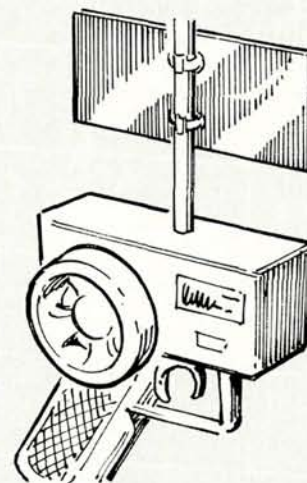
Cory Skoog, Cosmos, MN



RC10 WIRE ROUTING

To prevent wires from chafing on the rear tire, feed them inside through the large hole in the rear shock-mount bracket.

Jacques Duplantis, Raceland, LA



DRIVER'S SUN SHIELD

Make a sun shield from a 5x7-inch (or similar) piece of tinted plastic. (It doesn't have to be transparent to work.) Use nylon wiring ties to attach it to your antenna.

Clint Honea, Lockeford, CA

Radio Control Car Action will give a free one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send rough sketch to Jim Newman, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. Because of the number of ideas we receive, we cannot acknowledge each one, nor can we return unused material.

READERS' RIDES

Welcome to Readers' Rides. This is our way of giving recognition to the unique, innovative—and sometimes bizarre—vehicles that our readers have created. If you want to join the growing ranks of Readers' Rides winners, send us a sharp, uncluttered, well-exposed color photo (no Polaroids, please!) of your car or truck, along with a brief description. Who knows? The Ayatollah of Radio Controlla might pick your car.

If your ride is chosen, you'll receive a one-year subscription to Car Action, or we'll extend your existing one. You'll also be eligible for the second annual "Readers' Ride Car of the Year Contest" in the fall of 1990. Send your photos to Readers' Rides, R/C Car Action Magazine, 251 Danbury Rd., Wilton, CT 06897. Be sure to include your address and phone number, in case we need to contact you!

CONTENDER

Terry Wallach of Lakewood, NJ, whipped up this accurate replica of the Valvoline Winston Cup stock car. A regular racer at Megatrak (a large, concrete tri-oval), Terry uses TRC radials, a Novak T-1X ESC and Trinity power with Futaba guidance. With all this speed equipment, Terry is sure to do well in the points series!



FUTURE CHAMPION

Racing one of the new breed of monster trucks is Jeff Durand of Rochelle, IL. To make sure that he stays ahead of the pack, Jeff installed a Trinity motor, a Navak T-4 to handle the power transfer, and a Futaba radio to control this beast. With a great performer like this, you're sure to see Jeff in the winners' circle soon!

STALKING CAT

The Pro Cat beneath this incredible body belongs to Mike Galusha of Lakewood, CO. His friend Buffy Rockwell painted the awesome finish by hand. The panther on the hood is hand-painted, too—not some decal! To make the car go, as well as show, Mike equipped it with a Tekin ESC and receiver and a T6-turn motor. Watch out—this dirt predator is waiting to pounce on the competition!



YEAR OF THE CAT?

After seeing Jaguars defeated in both Group C and GTP competition, Tom Watana (of Reseda, CA) thinks he's ready to tear up the Electramotive Nissan GTPs and Group C Sauber-Mercedes with this replica of the highly competitive Jaguar XJR-11. With a race-bred RC10L chassis, Tekin ESC and a KO radio at work under its slick McAllister Jag body, this car won't need a mid-season replacement (unlike the full-scale one)!



SIX-WHEELER FOR SALE

Steve Mueller of San Leandro, CA, was the proud owner of this scratch-built six-wheel puller. (We use the past tense because Steve is selling the truck to one of his friends.)

Based on a few Blackfoots, the truck is equipped with two mechanical speed controls (to harness the power of the two stock motors) and Monster Beetle tires and rims. Steve's next truck will include even more modifications—and we thought this one had enough!

.....



SHOW BUSTER

Jay Heiser of Cockeysville, MD, is the proud creator of this custom Clod Buster named "Show Buster." With a body by Motion Graphics, three Trinity motors, working lights and a hood that tilts, this Clod is ready to stomp on all other concours contenders.

.....

DON'T TRY THIS AT HOME!

Here's proof that curiosity killed the car. Daniel Fike of Clarence, NY, sent us this photo of his wrecked FX-10. After seeing what kind of air it might get off a local quarter-pipe (skateboard ramp), Daniel discovered that R/C cars don't hold up too well to incredibly large jumps (or flights!). The only parts that needed replacing after the destruction were the chassis and the antenna. Just remember not to try this at home; this is done only by professionals!

.....



MATT'S MINI

"Mini mania" has struck Matt Finly of Houston TX. What started as a TRC Pro 10 is now known as "Limitations Unknown." This truck features a Chevy body and a full custom seat and dashboard, and it took five months to build and customize. According to Matt, people "freak out" when they see it. He must be a competitive racer with this mighty mini!



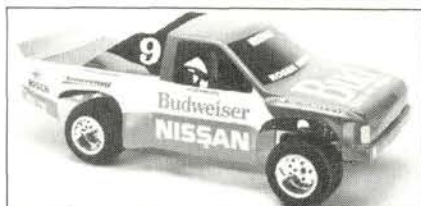
INSIDE SCOOP

by WALLY DAVID

The R/C car industry is rapidly advancing, with new products being offered at a head-spinning rate. So, I'll make manufacturers nervous, but feed you R/C squirrels who are hungry for info, by bringing you a special report on security leaks and "late-in" items. Here goes!

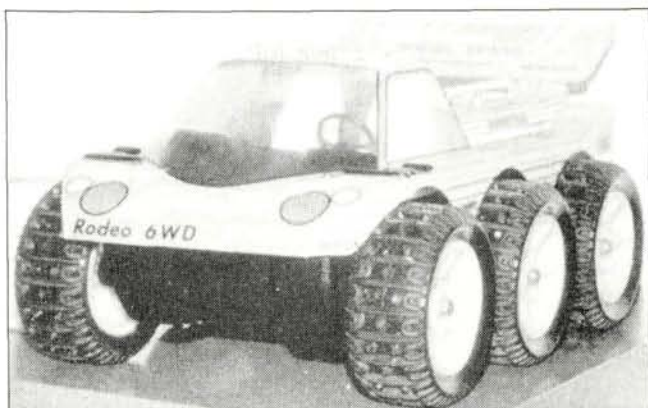
TWO FOR THE PRICE OF ONE

Here are some photos of two new innovations from RACO Modelcraft: 1/4-scale replicas of the ultra-stock cars and stadium trucks that are raced in the Mickey



Thompson Off-Road Grand Prix series. Based on RACO's popular Grand National chassis, they have 3 inches of ground clearance, long shocks, 4-inch studded off-road tires, aluminum rear trailing arms,

independent suspension and beefed-up steering. The great part is that the bodies are interchangeable, so you can have two vehicles for the price of one!



ROBBE ROUNDUP

Our agent was busy at the Nuremberg hobby show, as evidenced by this photo of a new, amphibious vehicle from Robbe. The Rodeo—the only commercially available 6WD vehicle that we know of—sports two 540 electric motors and a cradle chassis. Not only

can the Rodeo climb a 45-degree incline, but it can also operate in water. It steers like a tank: one side slows as the other keeps going at full speed. This 2-channel amphib should hit our shores around the time you read this.



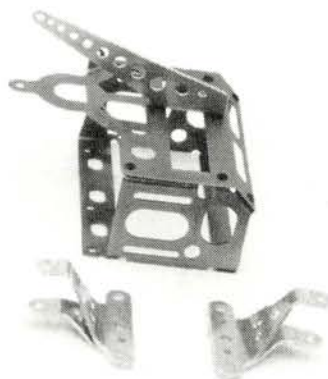
1/4-MILE MANIA

McAllister Racing enters the drag-racing arena with three new 1/10-scale Pro Stock bodies: Firebird, T-Bird and Lumina. All have Pro

Stock aero-scoops molded into the body. These sharp rods should be hitting the drag strip very soon.

PRO-LINE GOES ON-ROAD

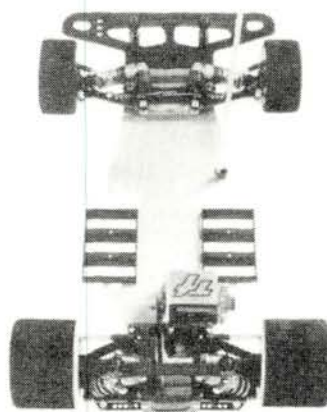
Pro-Line has long been an acknowledged leader in off-road and monster truck tires, wheels and accessories. Now it tackles the on-road market with some new, light wheels, foam tires and bodies. Unique, though, are the titanium rear pod and front-suspension arms for the Associated RC10L; these will save considerable weight. The suspension arms, which also fit the 12L and other on-road cars,



will probably eliminate the chance of breaking front-end pieces.

TEN-FORCE FROM NAVARONE

Working undercover at the Nuremberg Hobby Show, one of our agents spotted this 1/10-scale electric car that features a fully independent suspension, an aluminum differential and a Kevlar belt-drive transmission. We couldn't determine who makes it, or whether it will be available here. Keep your eyes peeled!



R/C 18-WHEEL KENWORTH

Robbe is set to release a 1/16-scale, 18-wheel Kenworth tractor-trailer. It has a sprung, triple-axle suspension, an aluminum chassis, an in-line motor and a three-stage tranny. The flat-bed trailer has 10 wheels and beams with chains to secure cargo. The extremely realistic cab has plenty of room



to support extra radio gear, so you can add lots of trick functions. To operate this big rig, a minimum of two channels is required.

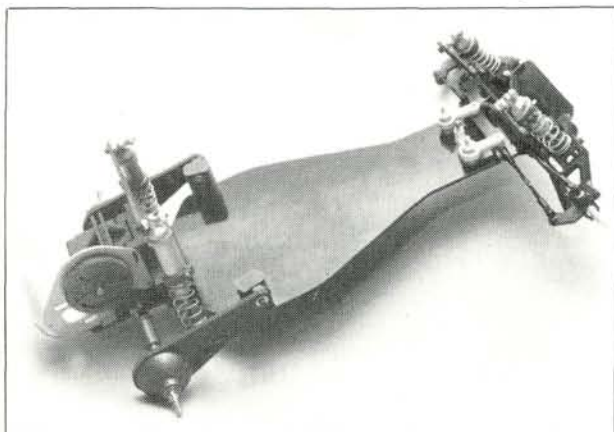
BULLET RACING RC10-X2

RC10 + JR-X2 = VELOCITY²

by BOB GAGNE

THE DEBATE STILL RAGES: which off-road car is the most competitive? The JR-X2 is the current national champion, and the RC10 and the Ultima have both won a world championship. Each of these cars has its proponents, and most racers agree that each has strengths and weaknesses, but which is the best?

The Associated* RC10's strong point has always been its front suspension, which has recently undergone some changes to further enhance its performance. The Associated shocks have been acclaimed as the industry standard



The completed rolling chassis, which has plenty of room for radio gear. Note that there are no holes for a battery holder or steering servo. Templates can help you to drill holes in the proper places.



The completed RC-X2, with an RCSP Mirage off-road body.

since they were first introduced, and the durability of the car's front end is legendary. The suspension is also one of the most adaptable and adjustable (allowing toe-in/out, caster and camber adjustment) ever made.

On the other hand, the rear suspension and drive system leave much to be desired. The stock A-arms don't allow toe-in/out adjustment, and the RC10 isn't as stable on rough tracks as cars with trailing-arm or link-type suspensions. The stock dogbone drive system, which tends to bind, isn't an efficient way to transfer power to the wheels. The new swing, or universal, drive shafts are a big improvement, but they still permit a lot of play, which eats up power and causes unnecessary wear on the transmission.

Although the RC10 tranny is one of the best, it isn't as efficient as some of the newer designs owing to the size, number and pitch of its gears. The external differential is protected only by a polycarbonate dust cover that often traps dirt in the diff.

The Team Losi* JR-X2 has proven itself to be a great car in a relatively short time. Its strengths are obviously its transmission and drive system. The transmission design incorporates self-lubricating, 48-pitch LRM (low-rotating-mass) gears with an internal differential, which is the most easily adjusted diff of any on the market. The drive system is an efficient, telescopic affair that uses universal joints at the axle and the transmission output—no power-robbing

(Continued on page 26)

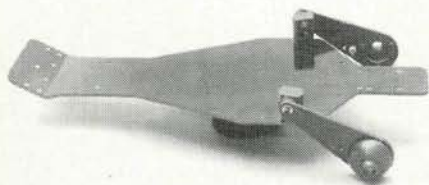
BULLET RC-X2

(Continued from page 22)

play in *this* unit! Like the RC10, rear-end adjustability is limited to camber, and there's no provision for toe-in/out adjustment.

I'm really being picky in my criticism of these fine cars. Their winning records prove that their shortcomings are minor, but I'm in search of the *ultimate* off-road car! Perfection might be reached by combining the best features of the best cars—the RC10's front suspension and the JR-X2's transmission and drive system—and adding further improvements for a nearly perfect chassis.

Bullet Racing Products* must have been thinking along these lines when it made the RC-X2 conversion kit. The kit includes a graphite chassis with very light, strong, graphite trailing arms, graphite front and rear shock towers, rear hubs, axles and Losi-style telescopic drive shafts. The chassis pan is drilled to accept the RC10 front end and the JR-X2 rear bulkhead and transmission.



The bare chassis with Bullet Racing's graphite trailing arms installed. The kit also includes front and rear graphite shock towers.

THE KIT

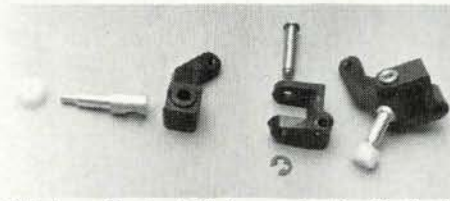
The kit's most important feature (besides incorporating the strengths of the RC10 and the JR-X2) is its unique trailing-arm system. The trailing arms are made of graphite instead of the usual plastic, nylon, or aluminum, so they're stiff, light and extremely strong. They can also be adjusted for toe-in/out and camber by means of a single adjusting cam, which is found on no other car. To adjust them, simply loosen one capscrew and rotate the cam until you reach the desired setting.

To further enhance the performance of this chassis, I decided to use the best, high-tech, third-party components. For the front suspension, I used Andy's* wide A-arms with Associated shocks and front-suspension mounts.

I also corrected a flaw in the design of both the RC10's and the JR-X2's front



ends by using Robinson Racing* steering blocks. The stock steering block's perpendicular kingpin puts the pivot point of the front wheels inside the wheel track. According to Rob Robinson of Robinson Racing, this geometry causes bump-steer. Robinson 18-degree steering blocks put the pivot points of the wheels approximately in the center of the tires, and this eliminates bump-steer. These units also

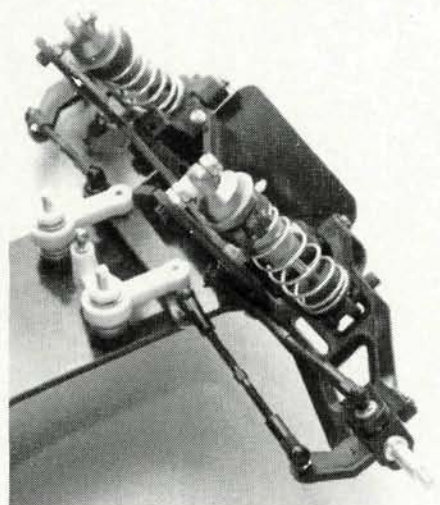


Robinson Racing's 18-degree steering block set up keeps the pivot point of the steering centered under the front tires, and this eliminates bump-steer.

seem to improve the camber angle of the wheels in sharp turns. For quicker toe-in/out and camber adjustments, I installed Du-Bro* turnbuckles. Finally, to "bullet-proof" the front end, I installed an A&L* RC10 steering bellcrank with a rack.

CONSTRUCTION

This kit definitely *isn't* for novices. To mount the battery holder and the servo mounts, you must do some drilling (if you

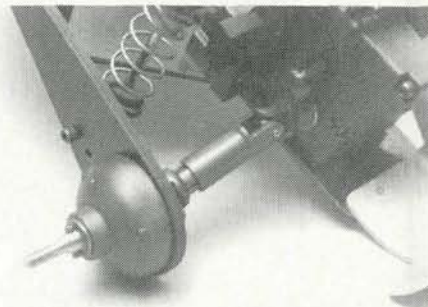


The completed front suspension. Andy's wide A-arms, Robinson Racing 18-degree steering blocks and an Allec&Lane RC10 bellcrank contribute to the car's stability.

don't use servo tape). Aside from that, constructing this chassis is easy, assuming that you've built an RC10 and a JR-X2 before.

The biggest problem is that there are no instructions, and instructions and paper templates (for drilling holes in the chassis for the battery holder and steering servo) would have been helpful!

The front-suspension parts fit the chassis flawlessly, as did the JR-X2 rear bulkhead and transmission. The drive shafts, however, were much too long; I shortened



The telescopic drive shafts are a big improvement over the older dogbone system. (These look like the Losi units supplied with the kit.) They were much too long for this chassis, however, so they had to be cut with a razor saw.

them by $\frac{3}{8}$ inch with an X-Acto razor saw, and then I cleaned the parts with a fine file. The rear hub carriers require standard, Associated-size flanged bearings; this was surprising, because the rest of the rear end was all Losi.

With the rolling chassis finished, I just had to install the radio gear and the motor. I used a Novak* electronic speed control and receiver with a Futaba* 9601 steering servo. For power, I chose a Reedy* Competition Stock motor.

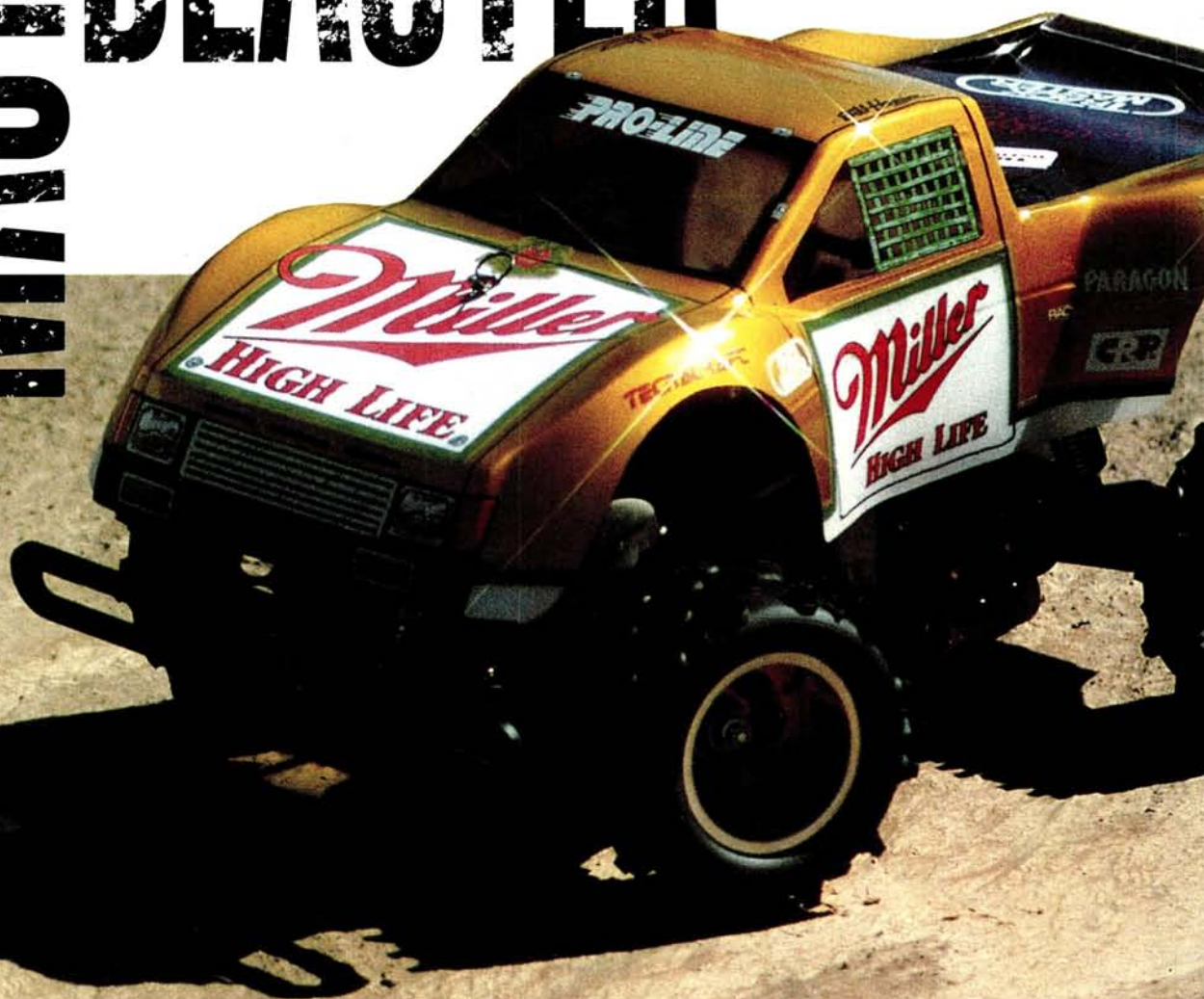
PERFORMANCE

After the first few laps, it was apparent that I wasn't dialed-in for the track at all. I flipped the car and broke the Bullet Racing graphite front shock tower, so I replaced it with a fiberglass RC10 unit. When I was back on the track, the Associated rear shocks were binding. Fortunately, I'd brought along my JR-X2, and I was able to exchange shocks without much

(Continued on page 91)

PROJECT

MASTER BLASTER



by BILL HENNING

WHY DO TRUCKS like the Blackfoot, the Big Brute and the Lunch Box have trouble competing in today's truck classes?—because competition cars are being converted into trucks, and manufacturers are marketing competitive trucks. After building Tamiya's* Mud Blaster, I decided to improve its performance so it could compete against this new class of trucks.

Since the Mud Blaster's chassis is the same as those of the Blackfoot and

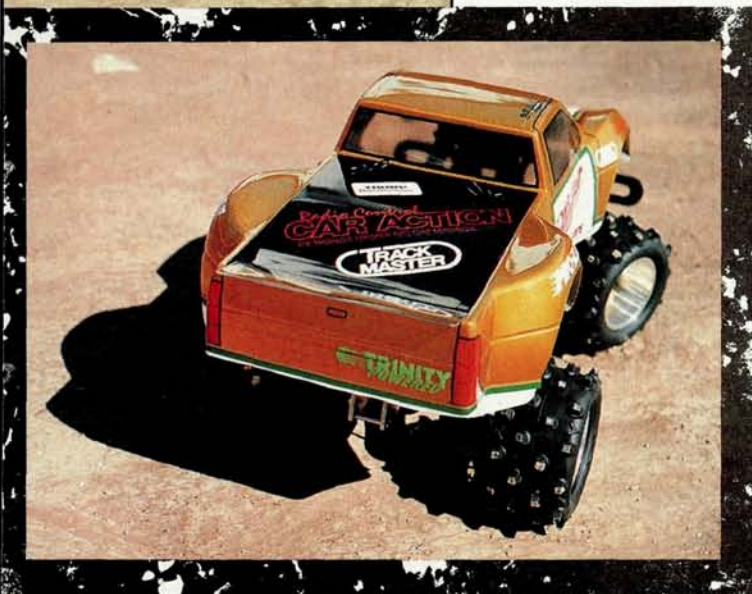
the Monster Beetle, it has inherited the same design flaws. Fortunately, it has also inherited all their after-market parts. To find out which kind of performance parts were available, I picked up Car Action's "Monster Truck" issue at my hobby shop.



THE TRANSFORMATION BEGINS

I started with the most important part: the drive train. Thorp Manufacturing* produces an excellent ball differential, a counter gear, and a dogbone setup for the truck. For this project, I decided to go all the way with Track Master's* new Turbo Glide belt-drive transmission. The kit comes with bushings or bearings, and with outer joint cups for the stock halfshafts or with a dogbone-style halfshaft.

The Turbo Glide transmission has an adjustable ball differential that's connected to the primary gear and shaft with a drive belt. I chose the ball-bearing version and the dogbone-style joint cups (no. 1504). To finish my bulletproof drive train, I used the Thorp dogbones (no. 4510) and the pinless-hub axle set (no. 4511).



MASTER BLASTER

SHOCKING CHANGES

My next big improvement was to replace the shocks on all four corners with Kyosho* Option House Gold short shocks. Because the rear shocks were too short to mount in the stock horizontal position, I mounted them vertically. This made the rear suspension move more smoothly, and it also looked better. To mount them in this way requires one modification: the lower shock mount must be moved a little farther back to a mounting hole that's already there. To avoid interfering with the lower part of the shock, the upper section (where the original mounting hole is) had to be cut off. Using a 3x15mm screw, I mounted the upper shock to the side of the rear body-mount post.

I needed a new set of rear body posts, so I used CRP's* upper chassis support system (no. 1628) for the Blackfoot. The system comes with two rear body posts and a rear body-post support that's connected to a set of rear shock mounts. (In this case, the rear shock mounts were just extra supports.) There's also a support that runs from the rear body-mount supports to the front shock tower. Because I was using Option House shocks, I had to replace the front shock tower with a JG* fiberglass front shock mount (no. 5003). I also used a JG Blackfoot bumper (no. 5001) and a Blackfoot front-bumper support bracket (no. 5001). The JG front bumper and the new CRP chassis support system should prevent the chassis from breaking.

A DO OR DYE SITUATION?

After dyeing my chassis, I can make this recommendation: Don't! It looks great, but when I dyed it, the chassis warped and shrank a little. It took a lot of work to get it to fit, and I was often ready to give up and buy another chassis.

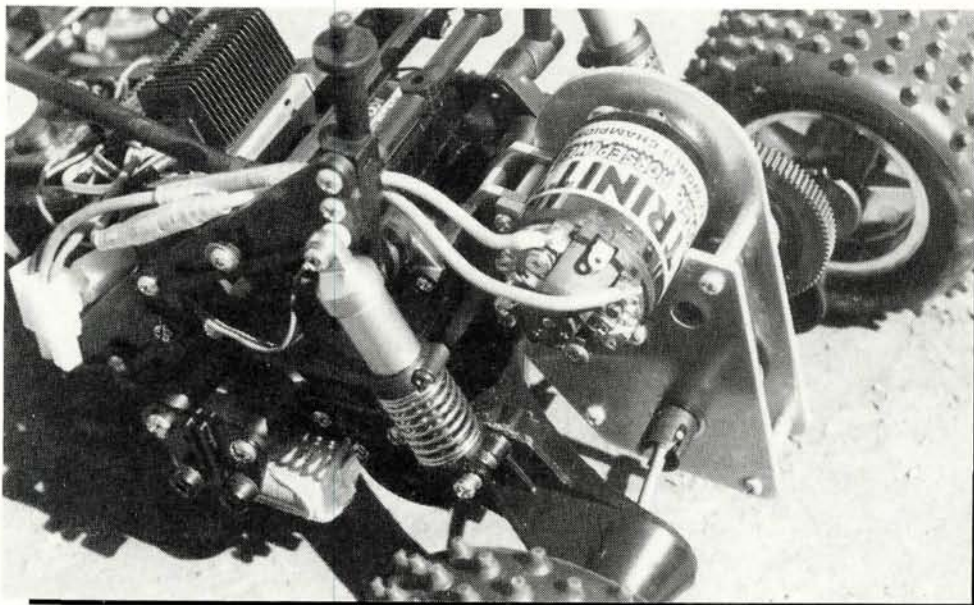
To get the wheels rolling, I used a Trinity* Gargantua modified motor (no. 1707) powered by a Trinity pushed 6-cell SCE battery pack. This combination should give you enough power to keep up with the competition. To control this power, I used KO Propo's* top model—an EX-1 radio system. Its features include: throttle and steering trim, steering rate, brake and throttle high-point adjust and steering end-point/trim/sub-trim.

The off-road model comes with the CX-4 electronic speed controller and the PS-303 FET servo. This servo is a little different because it has a separate box called an "FET booster" that's in line with

the receiver plug of the steering servo. This little box has a separate plug that can be attached to the speed control. The separate line that sends additional voltage to the servo produces a high-speed, high-torque servo. To keep the steering tight, I use the CRP Blackfoot heavy-duty steering kit (no. 1617) and a large servo-saver to keep the servo gears in good shape.

I chose a Pro-Line* Nissan, hard-body, pickup

The completed Project Master Blaster. Paragon Ultralon, Liquid Bearing, and Slip-Save keep it running smoothly and keep the body shiny.

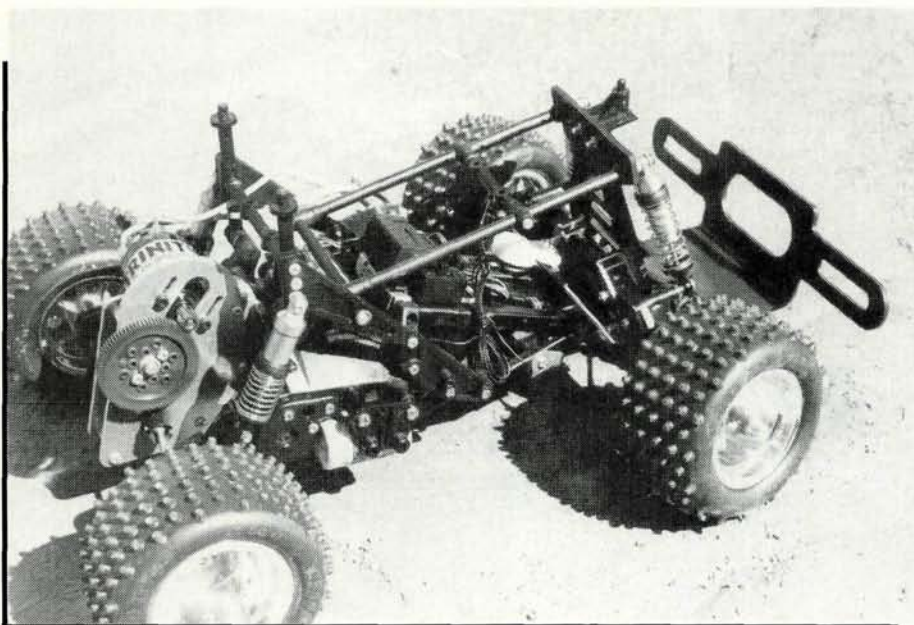


truck body (no. 3003) and painted it in a Miller "High Life" motif. After the windows and the lower portion of the body had been masked off, I sprayed the truck with two light coats of Pactra* Candy Yellow followed by three coats of Grand Prix Gold.

To simulate a tint, I painted the lower parts of the

The Trinity modified motor is bolted to the Track Master Turbo Glide tranny. This combo really makes Project Master Blaster get up and go.





A CRP Upper Chassis Support System replaces the rear body mounts and has two braces that are attached to the front shock tower.

windows white and then lightly airbrushed them with a coat of metallic black. I also used Parma's* Miller decals (no. 10683) and an assortment of others. I cut the front headlights and grills from the Team Losi* JR-XT decal sheet, narrowing the grill decal slightly to fit the Nissan grill.



The Pro-Line chrome wheels look great and are light enough for racing. The Technacraft aluminum wheels are for show only.

TIME TO BLAST

The only thing left was a tire change. I was surprised at how much smaller the diameter of the Pro-Line tires was in comparison with that of the stock tires. The smaller tires will lower the truck's center of gravity and so help prevent it from rolling in a sharp turn.

With a set of Technacraft* aluminum rims as a finishing touch, the Mud Blaster was transformed into the Master Blaster. There was one problem with the Technacraft rims: instead of a hub, they have a slot in the back of the rims for the axle pin to go through. I had used the Thorp pinless axle (no. 4511), which doesn't have a hole for a pin, so, to use the Technacraft rims, I had to use the Thorp rear axles (no. 4509). I like the Technacraft rims so much that I keep them just for "show" and use the Pro-line chrome Blackfoot rims for racing, as they're considerably lighter.

When I arrived for a test run, the track was being resurfaced with clay, so it was bumpy and had a giant pile of dirt in its center. After a few runs, I turned the dirt pile into a giant dirt ramp. The Master Blaster was well-balanced when it was launched into the air, and it seemed to hold its own against an RC10 conversion truck that was also running. A joint-cup grub screw came loose, but with a little thread-locking compound, I was running again. The Pro-Line Speed Paw tires gave plenty of traction on the hard, rough surface, and the Trinity motor and battery provided plenty of power.

The transformation was a success. All the hop-up parts helped to increase the Mud Blaster's performance. There are many other after-market parts available for the Blackfoot and the Mud Blaster, so if you're interested in "tricking-out" your truck, ask your hobby dealer for advice. Also, if you plan to race, check your local rules—you don't want to be put into a class that's too advanced for your driving or for your budget.

*Here are the addresses of the companies mentioned in this article:

MRC/Tamiya, 200 Carter Dr., Edison, NJ 08818.
Thorp Manufacturing, 380 S. East End, Unit H, Pomona, CA 91766.

Track Master Manufacturing, 1466 Pioneerway, Suite 10, El Cajon, CA 92020.

Kyosho/Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

CRP, 3250 El Camino Real, B-3, Atascadero, CA 93422.

JG Manufacturing, P.O. Box 6014, Whittier, CA 90609.

Trinity, 1901 E. Linden Ave, Linden, NJ 07036.
KO Propo, distributed by Global Hobbies, 10725 Ellis Ave., Fountain Valley, CA 92728.

Pro-Line USA, P.O. Box 456, Beaumont, CA 92223.

Pactra/Plasti Kote, 1000 Lake Rd., Medina, OH 44256.

Parma International, Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

Technacraft, 1335 Dayton St., Salinas, CA 93901.

SCOPING OUT

by JOHN RIST

FUTABA MC 116: A SOLID PERFORMER WITH A UNIQUE DESIGN

IN THE ELECTRONIC-speed-control field, Futaba* is probably best known for its reversing speed controllers. For several years, the company has packaged its MC112B with its more popular wheel radios, putting hundreds into service across the country. As I've explained before, however, reversing speed controllers have a larger power-robbing voltage drop than forward-only-with-brake racing-style ones. (This is because you must have FETs in both the positive and negative motor wires to reverse the polarity and force the motor to run in reverse.)

With the introduction of the MC116, Futaba enters the racing-speed-controller market. The MC116, which the company describes as a "Speed Control for Experts," has these features:

THE "SCOPING OUT" LAB

John Rist's lab consists of:

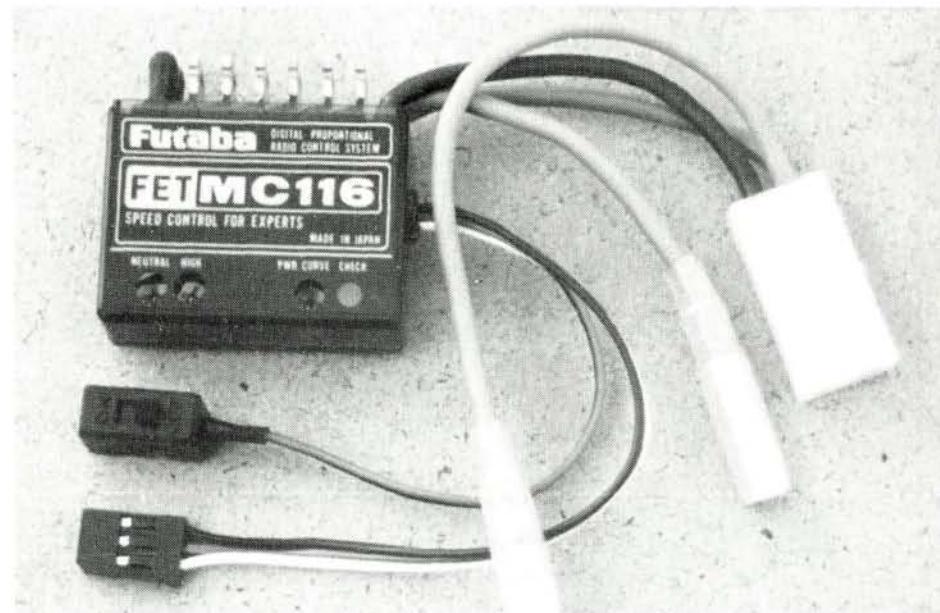
- an oscilloscope
- a digital voltmeter
- a resistor load bank
- a 6V 30-amp electricity supply
- a Pit Stop Radio servo/speed controller tester.

The oscilloscope is used to monitor the controller's output and to guarantee that it's fully on.

The digital voltmeter takes all the voltage-drop readings and verifies the reading on the current meter.

The resistor load bank consists of 40, 12-ohm, 5-watt power resistors, which can be switched on and off one at a time to vary the load between .6 amps and 20 amps.

In series with the resistors is a 25-amp Simpson current meter and a 1-percent .01-ohm resistor. By measuring the voltage drop across this resistor, the current-meter's reading can be double-checked. Of course, the lab power supply provides the test current.



The MC116 is Futaba's new racing speed controller. Its small size and light weight make it perfect for tight places.

- forward-only with brake
- six low-resistance FETs in parallel and one FET for brake
- three built-in adjustment pots for neutral, full-on and acceleration control
- dual-color LED for neutral and full-on adjustment
- built-in BEC and power switch
- gold-plated battery connector pins and bullet-style motor connectors

Like all Futaba speed controllers, the MC116 comes in a sturdy plastic box. Included are an instruction sheet, a screwdriver and a set of mating connectors for the battery and the motor.

Recognizing that connectors can cause large voltage loss, Futaba has gold-plated the battery connector pins. This is an improvement, but if you're serious about racing, you should change to a high-grade system, e.g., Sermos* Powerpole connectors. Powerpole connectors have silver-plated blade contacts with enough surface area to handle high current.

The MC116 has several unique features. The FETs stick out through the back instead of through the top, and the case is made of transparent plastic. The brake FET is coated with an insulating material, and the positive (orange) motor lead is connected to the battery connector instead

of to the speed controller's printed-circuit board.

The biggest departure from normal is the location of the FETs. In most cars, the speed controller is mounted horizontally, with the FETs pointed upward. This places them in good airflow for maximum cooling. In some cars and trucks, however, the speed controller is best mounted vertically on the rear shock tower. In this location, the FETs on a conventional speed controller would point forward.

When the MC116 speed controller is mounted vertically, however, its rear-facing FETs point straight upward and receive maximum airflow. (Actually, the direction in which the FETs face isn't critical, as long as you make sure they're exposed to enough cooling air.) If you mount the MC116 in the conventional horizontal position, be sure to face the FETs forward for maximum ventilation.

There's one danger with the location of the FETs on the MC116: when the controller is mounted on a conductive surface (e.g., an aluminum or carbon-fiber chassis), the FETs' metal tabs lie very close to the chassis. This makes a short possible, and damage will occur if you short the brake FET to the others. To minimize this possibility, the braking FET is coated with

a protective material. Futaba strongly warns owners *not* to remove this insulation.

The instruction sheet doesn't mention adding a heat sink, but Tekin's* standard six-FET heat sink will fit the MC116. If you're experiencing overheating, this heat sink should help, but you won't be able to use one on the braking FET, and you mustn't let it touch a metal chassis.

The MC116's transparent case doesn't serve any real function, but it's attractive, and it allowed me to peek inside without the danger of destroying the controller. The parts are tightly packed; Futaba's engineers have done an excellent job of minimizing size and weight. It's always fun to look at a new speed controller, but the real thrill comes in seeing if it can put the pedal to the metal! The first step is a trip to the "Scoping Out" lab.

LAB TESTS

To be fair, I run two voltage-loss tests—one from connector to connector and the other at the 2-inch point on the wires—to assess the speed controller's true resistance. Experience has shown that long wires and connectors account for half of a speed controller's voltage loss. The MC116 has fairly short wires and gold-plated pins in the battery connector, and this is a step in the right direction.

While passing a hefty 12 amps, I measured a .22V drop from battery connector to motor connector. This calculates out to .018 ohm. I ran the test again with the same amperage, and I took voltage readings at the 2-inch point on the wires. The voltage drop was .13 volt, or .011 ohm. This is a lot higher than Futaba's rating of .0035 ohm, but their figure is for the FETs only and doesn't include the resistance of the printed-circuit board, the solder joints and the wire. The extra wire and the connectors almost equal the resistance of the speed controller! For performance, it pays to keep wires short and to use racing-style connectors.

Next, I ran a test to find out how cool

the MC116 runs under load. I switched in all the resistor load bank, and this increased the current to 17 amps. I then let the controller run without cooling air. After 15 minutes, the MC116 was quite warm, but well within safe operating limits.

During my initial set-up of the MC116, I monitored the motor-drive wave with my oscilloscope. At half throttle, and with the Power Curve Trimmer set fully counterclockwise (the softest acceleration setting), I noticed that the FETs turned on slowly. Slow-switching FETs tend to heat up, so I left the Power Curve Trimmer at the same position, set the throttle at the 90-percent point and let the MC116 run for another 10 minutes. The FETs became quite hot.

I then set the Power Curve Trimmer fully *clockwise*, which is the sharpest acceleration setting, and the FETs cooled off considerably. For the best performance and coolest operation, run the Power Curve Trimmer fully clockwise. If slippery track conditions mandate that you crank in a slower acceleration-curve setting (i.e., counterclockwise), be sure that the controller is mounted so that it gets lots of air.

The dead-short test is always the last one that I run on a speed controller. I use a shorting device that I made out of 2 inches of monster wire and 2 alligator clips. When I dropped the short across the output, the current jumped to 41 amps. As always, everything got very hot. I left the short in place for 1 minute, and the wires to my lab supply started to smoke! I removed the short, gave the MC116 time to cool and turned it back on. I'm happy to report that it survived! With a little caution, the MC116 should survive the abuse of jammed gears and burnt-out motors.

CAR TESTS

It was time to head to the track. In preparation for running the MC116 in my car, I read the instruction sheet. As with all

FUTABA MC116

DIMENSIONS:

Length	1.58 inches
Width	1.41 inches
Height (w/heatsink)	0.61 inch
Weight	1.4 ounces

TUNING:

Access to Controls	Excellent
Ease of Adjustment	Good

PRICE:

Suggested Retail	\$159.95
Warranty	1 year

ELECTRICAL:

(Manufacturer's Specs)

Max. Voltage	8.4 volts
Min. Voltage	7.2 volts
Max. Current Forward	1260 amps
Continuous Current	
Forward	210 amps
Resistance	0.0035 ohm

TEST PARAMETERS:

Voltage	6 volts
Current	12 amps

TEST RESULTS:

Voltage Drop	
w/Connector	0.22 volt
Voltage Drop, 2-inch Wire ...	0.13 volt
BEC Output, 6-Cell Battery ..	5.83 volts
Resistance	
w/Connector*	0.018 ohm
Resistance, 2-inch Wire* ...	0.011 ohm

*Resistance=Voltage Drop/Amps

COMMENTS:

The MC116 is a small, light, good-looking, racing-style speed controller. It has an unconventional FET placement; its seven FETs face the back instead of the top. If the controller is mounted vertically on the rear shock tower, this could provide better cooling. The MC116 has a very accurate built-in pulse checker and a third adjustment screw (labeled Power Curve Adjustment). This screw affects the acceleration, and it allows you to better tune your car.

SCOPING OUT

Futaba instruction sheets, this one is complete and accurate, but it's worded in such a way that it's difficult to understand. I get the impression that the sheet is a literal translation from Japanese to English. For instance, it refers to the car's battery pack as the "running Ni-Cd battery"! Anyway, the pictures are good, and I didn't find any errors.

I mounted this "Speed Controller for Experts" in my Turbo Ultima with a 15-turn modified motor and a 7-cell pack, and I went through the standard procedure of matching it to my transmitter. The only feature not mentioned in the instruction sheet is the transmitter reversing switch. If this switch is in the wrong direction, you might think that your speed controller isn't working. After you've set the neutral adjustment so that the motor just stops running, advance the throttle forward a little. The LED should light green. If the LED glows green when you advance the throttle to reverse, flip the reversing switch.

I had a set of street tires on my Turbo Ultima, so I headed for a paved parking lot to give this combo a run for its money. I started out with the Power Curve Trimmer set fully clockwise, which gives maximum acceleration. The car went absolutely wild!

The MC116 is obviously a good performer, and its throttle response is very smooth. The brakes aren't extremely strong, but they're smooth and controllable and should be good for most racing. When the battery dumped, the car's FETs were slightly warm, and the battery and motor were hot. This is a sure sign that battery power is being delivered to the motor and not wasted in the speed controller.

On the next battery pack, I tested the Power Curve control by repeatedly changing it from clockwise to counterclockwise and back again. Each time, I brought the car to a complete stop and then punched the throttle hard. Although the difference was slight, acceleration with the Power

Curve Trimmer set fully counterclockwise was softer. If you're off-road racing and encounter slippery conditions, try the counterclockwise setting. Because of the heating associated with this setting, however, I plan to run mine fully clockwise whenever possible.

I haven't had a chance to run my MC116 in a real race yet, but I think it will be competitive. I just bought a new Futaba Magnum Junior radio system. I think it would be nifty if Futaba packaged a MC116 speed controller with its Magnum Junior (as an option) and replaced the two standard servos with a S32H high-speed one! Talk about a race-ready trick setup at a reasonable price!

**Here are the addresses of the companies mentioned in this article:*

Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718.

Sermos R/C Snap Connectors, Cedar Corners Station, Box 16787, Stamford, CT 06905.

Tekin Electronics, 970 Calle Negocio, San Clemente, CA 92672.

TWIN ENGINE TERROR.

Cruise quietly through a serene pond, or modify it to set the lake on fire. Villain IV combines the best of both worlds in one high performance off-shore racer. The twin 540 motors are linked with dual, 2:1 reduction, adjustable gear transmissions. The two steerable outdrive units are equipped for adjusting the trim angle so that optimum performance is extracted from the counter-rotating, surface-piercing, propellers. The sleek deep "V" hull is a true-to-scale reproduction of the actual Chaparral™ Villain IV. Its

proven design allows it to slice confidently through rough water with unmatched stability.

The assembled Villain IV is completely ready-to-float with a two-channel radio system and heavy-duty FWD/REV electronic speed control. Villain IV is also available as an easy-to-assemble kit which accepts all other component two-channel radio systems. If mind warping speed is your intent, ask your hobby dealer about inexpensive modifications which allow Villains to reach radar-clock speeds of up to 26 MPH (so far!).

Villain IV

SPECIFICATIONS

HULL	"Deep V" Offshore racing
WEIGHT	3.5 lbs. (w/o batteries)
LENGTH	31" Overall
BEAM	8.25" Overall
DRAFT	4.5"
DEAD RISE ANGLE	22 Degrees
MOTORS	Twin RS-540S With Aluminum Heat Sink
DRIVE SYSTEM	Adjustable 2:1 gear Steerable Outdrives Counter-rotating Props
OILING SYSTEM	Built-in
PROPELLERS	Surface Piercing
TRIM ANGLE	Adjustable
SPEED CONTROL	Model 1501 - 4 Step FWD/REV Mech Model 1508 - FWD/REV Electronic
RADIO	2-CH Stick Radio
BATTERIES	(1) or (2) 6-Cell
STAND	Mahogany (included)
APPROX. RUN TIME	8-12 Min. (2) 6-Cell 4-6 Min. (1) 6-Cell

TRAXXA

12150 Shiloh Rd. Dallas, TX 752

HOT TRACKS

by STEVE POND

Welcome to "Hot Tracks." Each month, we'll choose an outstanding track to feature in this column. To qualify, send in some high-quality, black-and-white photos of your track, along with a description (approximately 500 words), and tell us why your track should be chosen. Send your entries to Hot Tracks, Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897.

RADIO CONTROL PERFORMANCE CENTER, WEST BRIDGEWATER, MASSACHUSETTS

The Radio Control Performance Center in West Bridgewater, MA, is one of the best-kept secrets in R/C racing! One look at this year-old facility tells you that no expense was spared. There's an 18-hole miniature golf course, a concession stand that has the best food ever and a full-service hobby shop that's large enough to accommodate a small track. Its inventory includes parts for most 1/10- and 1/12-scale on and off-road cars, and there's a large supply of accessories. As a service to its customers, RCPC also offers tire cutting, commutator truing, magnet zapping and complete motor rebuilds.

On the second floor, there's a complete video arcade with some of the newest games. Here's the show-stopper: around the side of the immense semi-circular wall is what is probably the largest, indoor, banked carpet-oval track in the world—a whopping 500 feet of grey Ozite carpet covers this huge oval.

The track has long, flat straightaways that lead into sweeping 35-degree, high-banked turns. The track's 12 1/2-foot width



makes high speeds and passing traffic easier to handle, and the lane-marking lines and starting-grid markers that are marked with different colors of carpet don't interfere with traction like painted

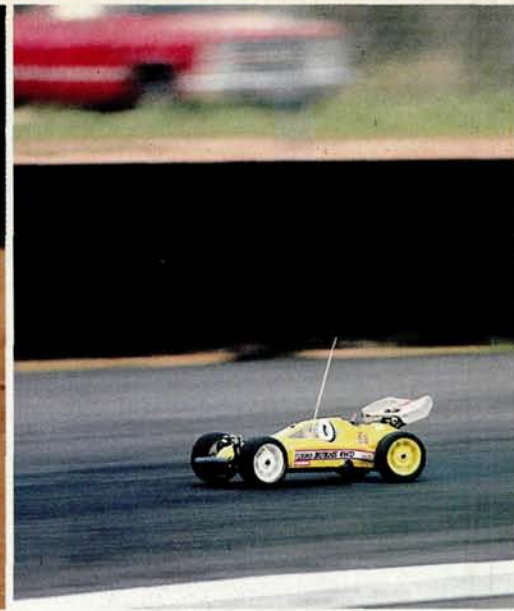
lines often do. The oval's infield has an off-road dirt track. Each section of track is carefully sculpted, and it can be set up to challenge any racer.

For precise results, both tracks are equipped with AMB computer lap-counting systems. A common pit area accommodates 140 drivers (everyone has his own four-plug outlet), and it services both tracks on Tuesdays and Sundays (off-roaders) and the big oval on Thursdays.

If you're ever in the Northeast, do yourself a favor and stop by the track; better yet, bring a car and give the track a try. It's worth the trip.

For more information, contact John Webber or Nick Dorocz at the Radio Control Performance Center, 4 Manley St., West Bridgewater, MA 02379, (508) 588-9666. ■





NITRO POWERED PISTON POUNDERS



KYOSHO 1/8-SCALE



INVADE THE PEACH STATE...



PHOTOS BY STEVE FORD

GEAR OFF-ROAD REGIA

OFF-ROAD CHALLENGE

OFF-ROAD CHALLENGE



Above: Mike Burnette and Joel Johnson doin' some last-minute prep before the start of the on-road A-Main.



Above right: In both the on-road and off-road races, drivers made at least one fuel stop, as shown here by Tom Grogg.



by STEVE POND

FORGET EVERYTHING you've ever heard about $1/8$ -scale racing! Have you been told that the engines are too difficult to start and keep running, that the cars are too expensive, and that maintenance is too much of a problem? I bet you have.

In the States, the only popular form of organized $1/8$ -scale racing has been mainly with on-road cars, which have, unfortunately, become a very costly, highly competitive form of R/C racing, so relatively few racers compete regularly.

I had many doubts about $1/8$ -scale racing until I spent a weekend in Georgia at my first "real" $1/8$ -scale off-road event—the Kyosho $1/8$ -scale Off-Road Challenge, which is the first race in a four-race series designed to promote this type of racing here. (It's already popular in Europe.)

GETTING STARTED

The biggest problem faced by most newcomers to gas racing is getting their engines started. Yep; the first step toward getting your gas-powered cars on the track is often the most difficult. Later, looking back, you might chuckle and wonder why you had such a hard time, and a few simple engine tips can make your life easier.

Before you even *try* to fire the engine, you should adjust the low-end and high-end mixture screws so that they're in the ballpark. The high-end mixture on most carbs is controlled by the large needle that can be adjusted manually. A good starting point for most engines is about three turns out from closed (to close the needle, turn clockwise).

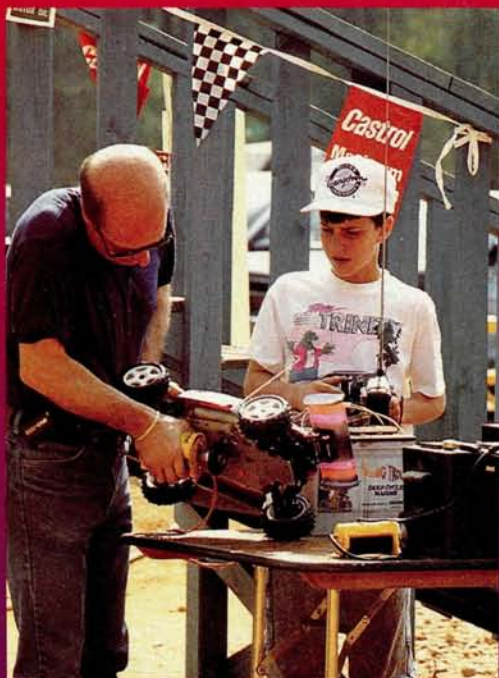
Likewise, the low-end mixture, which is usually controlled by a screw in the side of the carb (not the idle adjustment!), should be about three turns out from the fully closed position. These settings are a little rich for normal conditions, but it's best to run the engines this way for the first tank or two.

With the glow-plug igniter connected to the glow plug, bump the starting wheel against the engine flywheel. (Don't hold the starter to the engine, because you might damage or flood the engine.) When looking at the engine from the crankshaft, the flywheel should be rotating counterclockwise, and this means that the starter should be going clockwise (really?). Start the car from either the front or the back, whichever you prefer. On the first try, it might take a few more shots with the starter because it takes a while for the fuel to reach the carb.

When the engine has started, let it warm up for a minute. If you don't nurse the car up to speed, you risk "flaming out" a cold engine. Holding the car in the air, gently give the engine short bursts of throttle to prevent fuel from collecting in the crankcase (commonly referred to as "loading up").

Give the car a few laps and see how it runs. If the car runs well at high speeds but is prone to stalling when it comes down to idle, you should adjust the low-end mixture. If the car comes off the line and out of the turns well but has trouble at high speeds, then pay some attention to the high-end adjustment. If both settings are at three turns, they're probably too rich for moderate weather conditions and should be turned in (clockwise).

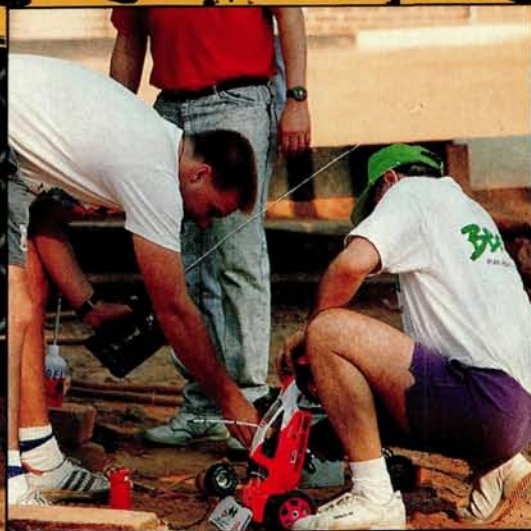
Ideal mixture settings can change according to the weather, but regardless of what the car is doing, the most you ever turn either of the needles is about an eighth of a turn at one time. It might take a tank or two to get the settings where you want them, but when the engine has been correctly set, the horsepower will be unbelievable. Be patient, and make only one change at a time—and when you get your engine dialed-in, hold onto your transmitter!



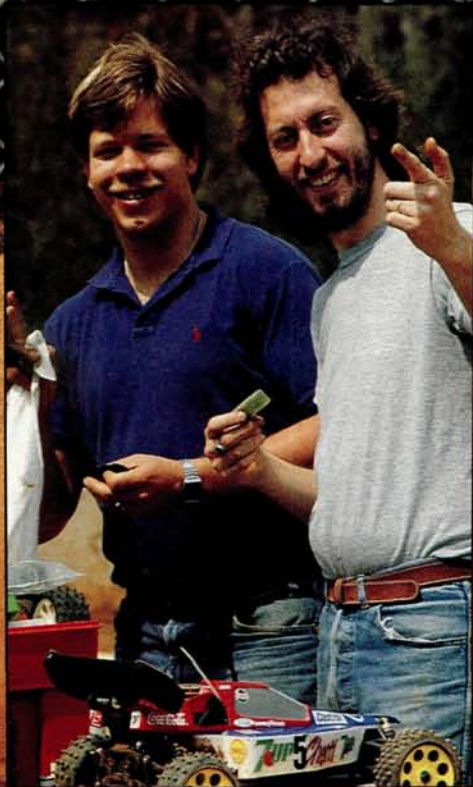
2X

WINNAH!

OFF-ROAD CHALLENGE



Joel Johnson and Billy Koliopoulos wore out their starting arms trying to start Steve Pond's Burns for the first time, but when it fired up, it was smooth sailing.



Italian Tony Lionello (right) was here on a visit when he heard about the Kyosho Challenge.

ARCAR South in Stockbridge, GA, was the site of the two-day event. A clay off-road track, a dirt-oval track, and a sizeable paved oval and road course—what more could we want? MC Ken Macleish (of ARCAR South) and Kyosho's Bill Jeric worked hard

Even though the number of entrants was limited, there were local racers, a group from California, some invited drivers and even a visiting racer from Italy.

to stage the event: a day of open practice on Friday, qualifying and Mains for the off-road racing on Saturday, and for the on-road racing on Sunday. On-road? Yep! To add a little flavor to the program, each of the off-road cars was outfitted with a set of slicks for racing on the asphalt track!

THE GAS GAUNTLET

On Friday, some racers took advantage of practice time on the off-road track to prepare for Saturday's racing. The off-road track was rather hard, and this made it difficult to harness all the horsepower of those nitro-burning engines, and I soon learned that these cars can't be driven like the electric cars I'm used to.

Despite their weight of nearly 8 pounds, the

horsepower of these engines would send you into the boards if you gave them a little too much "blipping" action on the throttle (you can get away with this on electric cars). Tire swapping was the order of the day; we wanted to see which tread could give the best traction. Fortunately, for racers who decided to do some experimenting (or heavy-duty crashing), the guys from Kyosho had a number of different tires and spare parts available.

OFF-ROAD

On Saturday morning, with an 18-car field, heats were set up for the off-road competition. Even though the number of entrants was limited, there were local racers, a group from California, some invited drivers and even a visiting racer from Italy.

After a few rounds of practice before the beginning of the qualifying, the event started to roll at about 11 a.m. Each qualifier was 10 minutes long, and there was one required fuel stop. Four cars ran in each heat, so it was fairly easy to get around



On the right, are the two top finishers' cars—those of Carl Christy and Joel Johnson—held by pitmen Billy Koliopoulos and Bud Bartos.



the track without getting tangled in traffic. There were very few delays caused by stalling engines or other mechanical problems, and the racers ran four qualifying heats before the Mains.

The fastest qualifiers included Joel Johnson, who eventually took TQ off-road honors with his Turbo Burns. Johnson's car was essentially stock with the addition of a graphite chassis, an O.S. EX-B engine and a few titanium parts here and there. (He ran this car at the IFMAR World Championships.) Although some seemed to think that his graphite chassis gave him a significant advantage, there was actually only a very minor weight savings. He just turned in an awesome driving performance, and this earned him the top spot—but not without some heated competition.

Mike Burnette, also driving a Turbo Burns in stock configuration with an O.S. EX-B engine, was Johnson's closest competition throughout qualifying, and they swapped the lead many times. Burnette's engine-tuning skills netted him some awesome horsepower, and when he combined this with his equally impressive driving skills, he was a very tough customer.

Carl Christy—an experienced $1/12$ - and $1/10$ -scale, national-level, on-road racer—was surprisingly fast



for a driver with very limited off-road experience, and this was the first time he'd ever run a nitro-powered car! His sharp-looking Turbo Burns sported an O.S. EX-B engine and the trademark black and blue Team Ugly colors. With super-sharp driving skills and modified Burns cars, Steve Ozuna and Scott Parks from California—two of the most seasoned gas racers on the track—rounded out the group that made the A-Main. Powered by O.S. EX-B engines, their standard Burns cars had minor chassis mods.

Just as the sun began to set, the final qualifying round came to a close, and the lights came on for racers to take a break and tune their cars before the Mains.

OFF-ROAD CHALLENGE



Far left: The nerf bars on the side of this Burns helped Mike Burnette marshall it without problems.

Left: Jimmy Hines put on a dynamite flying show with his X-Cell helicopter.

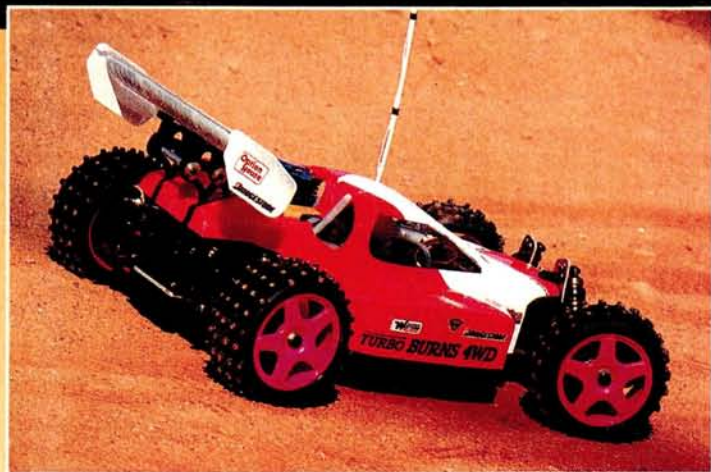
THE MAIN FOUR

Racers agreed that the Mains would be cut to 20 minutes for the C and D and 30 minutes for the A and B, instead of the scheduled 30 minutes and 1 hour. (After the 10-minute qualifiers, most said that running 1 hour in the Mains would be too draining.)

● **D-Main.** As usual, the Mains were run in ascending order—from the bottom up. Bringing home the bacon, Californian Brian Knight drove a standard

Burns with a K&B engine. Just behind him was the youngest racer on the track—Anthony Link—who ran fast, but had trouble keeping his car running all day. Tony Lionello from Italy took the 3rd spot with his OPS-powered Turbo Burns, which was also plagued with mechanical problems. Rounding out the D-Main was local driver Bo Perkle.

● **C-Main.** My moment of glory came when I won the C-Main by a fairly decent (he said, modestly!)



WHAT'S A TURBO BURNS?

The Turbo Burns is the latest off-road nitro burner in Kyosho's long line of 1/8-scale cars, and it's something like the full-scale ZR-1 Corvette, the SHO Taurus, the Mustang GT, etc. Something of a wolf in sheep's clothing, on the surface, it looks like a standard Burns (which isn't wimpy, by any means) with a different body, but tucked underneath the hood are some "trick" refinements that make it really awesome.

The Turbo chassis is standard Burns equipment that has been lightened around the edges, and the holes on the bottom are countersunk so that they can be used with tapered flat-head screws. This keeps all the hard-

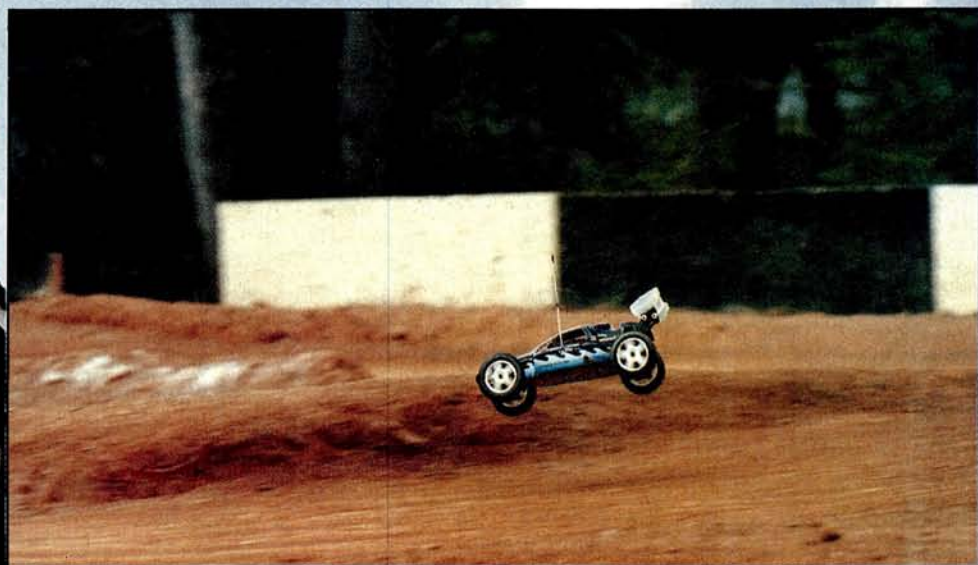
ware tucked in and prevents unnecessary dragging. To help keep a handle on all the horsepower, the wheelbase is also slightly longer.

Although it looks like the standard Burns, the Turbo's suspension has a bunch of little improvements that make it much more versatile. These changes include larger, longer shocks, beefed-up A-arms, an adjustable rear anti-roll bar (instead of on the front), and adjustable-width A-arms, front and rear.

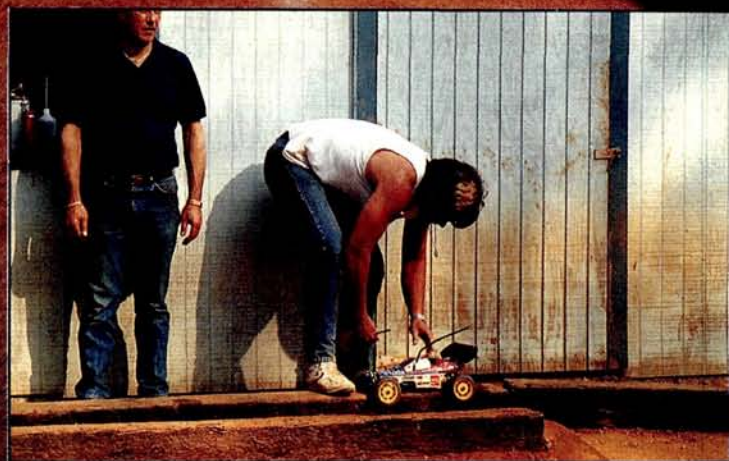
Longer dogbones, which you'll need for the wider setting on the A-arms, aren't yet available, and this limits the car to the narrow setup. When they do become available, they'll add yet another tuning aid. For high-bite tracks, the rear can be widened to slow steering response; for slippery tracks, the front can be widened for quicker steering.

Other race-bred features include a flip-top fuel tank for fast refueling, a "tuned pipe" and a new, adjustable center differential. This new center diff can be infinitely adjusted to transfer power from the front to the rear wheels, whereas the diff in the original Burns could only be locked or run loose.

The Turbo Burns is one first-rate piece of heavy artillery. Off-road racing has always been a strong part of R/C racing, and the Turbo Burns adds another dimension to it. Whether you want to trade-in your electric-powered buggies or just add gas to your arsenal, the Turbo Burns is highly recommended.



Christy's Turbo Burns soared with the best of them, even though this was his first time racing a 1/8-scale car!



Left: Those who turned around the fastest pit stop had a decided advantage, as a pit was required at least once during the qualifiers.

OFF-ROAD CHALLENGE



Right: Having just put the car together, Carl Christy was the surprise finisher with a 2nd overall.

margin with my EX-B-powered Turbo Burns, but I had a couple of grey hairs before it was over.

During the first part of the race, Romie Lucas's EX-B-powered Burns was close behind me, and we swapped the lead a few times. After the mandatory pit stop, Lucas's car went out with some mechanical trouble and by the time he was back in the race, I had stretched my lead to more than five laps.

Ken Macleish (who was distracted by running the races for the weekend) garnered a 3rd-place finish with his EX-B-powered Turbo Burns, and Californian Sandy Hunt came in 4th with an O.S.-powered Burns. Taking into account that she was running a borrowed car and running a nitro-powered car for the

first time, Hunt's performance was impressive. She earned the unofficial award as the event's best turn marshall, too. She went all-out to keep everyone on the track, and

she did it so well that she reached every overturned car as soon as its roof touched the ground. Way to go!

● **B-Main.** Team Ugly's Jim Hoffman with his new EX-B-powered Turbo Burns led the way, and



he was followed by Kyosho's Bill Jeric who drove—you guessed it!—an EX-B-powered Turbo Burns. Right on his heels was co-worker John Palmer (also driving an EX-B-powered TB).

Bud Bartos (who gets the award for *breaking the most parts!*) managed to take the 4th spot in the B with an EX-B-powered TB. (You should know what "TB" stands for by now!) In the process, he burned up three or four brake discs and was the first to blow an engine (his glow plug came loose). Kim Potter, who works with Ken Macleish at ARCAR South, rounded up the B-Main in 5th place with his EX-B-powered TB. (Is this monotonous—or what?!)

● **A-Main.** This didn't get under way until it the sun had set, but the track was lit like a baseball field. The odds-on favorite, Joel Johnson, got off to a good start, but it looked as though Carl Christy and Mike Burnette had been surgically attached to him as they freight-trained it through the first few minutes of the race.

Johnson managed to stretch his lead, leaving Burnette and Christy to battle it out for 2nd. During 30 minutes of racing, each driver made at least four fuel stops, and this confused the order, but the automatic lap-counting system gave the an-



The three top dogs during off-road racing were Carl Christy, Joel Johnson and Mike Burnette.

nouncer constant updates on who was where.

To make a long Main short (sorry!), Johnson hardly ever missed taking the fast line through the turns, and his skills earned him a very commanding lead. (On *this* track, one mistake would set you back so far that it would take some time to close the gap.) Christy and Burnette alternated in 2nd and 3rd places, but when the dust settled, Christy had nosed out Burnette for the runner-up spot. Scott Parks and Steve Ozuna had their own race for 4th and 5th, but they just couldn't match the speeds of the leaders and finished 4th and 5th, respectively.

SLICKS & SPIKES FOR SUNDAY

On Sunday, we had to convert our off-road cars to run on asphalt, and few drivers had practiced on the oval, so the day promised to be *interesting!*

In the limited practice time, everyone scrambled onto the track to see which setup would work best. Some tried slicks on the rear and pin spikes on the front; others went with the slicks all around. (Both tire combos worked fairly well, but it was fun to see how much imagination racers used to get their cars hooked-up.)

Because many people had a long journey home ahead of them, the qualifiers were cut from four heats to three, and the C- and D-Mains were combined to give every-

KYOSHO 1/8-SCALE OFF-ROAD CHALLENGE

OVERALL	NAME	OFF-ROAD	ON-ROAD
1	Joel Johnson	1st A-Main	1st A-Main
2	Carl Christy	2nd A-Main	3rd A-Main
3	Bud Bartos	4th B-Main	2nd A-Main
4	Scott Parks	4th A-Main	2nd B-Main
5	Bill Jeric	2nd B-Main	1st B-Main
6	Mike Burnette	3rd A-Main	5th B-Main
7	Kim Potter	5th B-Main	4th A-Main
8	Steve Ozuna	5th A-Main	1st C-Main
9	John Palmer	3rd B-Main	3rd B-Main
10	Jim Hoffman	1st B-Main	3rd C-Main
11	Anthony Link	2nd D-Main	5th A-Main
12	Brian Knight	1st D-Main	4th B-Main
13	Steve Pond	1st C-Main	5th C-Main
14	Romie Lucas	2nd C-Main	4th C-Main
15	Bo Perkle	4th D-Main	2nd C-Main
16	Sandy Hunt	4th C-Main	6th C-Main
17	Ken Macleish	3rd C-Main	DNS
18	Tony Lionello	3rd D-Main	DNS

one time to get on the road or the get to the airport.

The track is a paved oval with a circumference of 450 feet—plenty of room for the nitro engines to get up to speed. The problem was getting the cars through the turns; they all pushed around the corners, and this made suspension tuning very important if you wanted to make it through the Mains without having to change your outside front tire.

(Continued on page 104)

CUBIC INCHES OR CUBIC BUCKS?

Just how expensive is racing with an 1/8-scale gas-powered car? A group of highly visible, elite, *on-road* racers have been known to spend thousands of dollars on their racing machines. In contrast, 1/8-scale *off-road* racing hasn't progressed that far, and that has kept costs reasonable, but still many have steered away from it, thinking it's more expensive than electric racing. Is it?...

At the lower levels of racing with less expensive cars, the cost of racing in 1/10 scale can be much less than racing 1/8-scale off-rollers, but if you actually compare the cost of a *high-level* electric kit and a *topnotch* gas-powered car, the numbers might surprise you.

Competitive electric-powered cars cost considerably less than hot 1/8-scale cars, but the number of accessories you need for electrics and the cost of maintenance pushes spending into the twilight zone. But when you're over the hump of buying an 1/8-scale car and its accessories, the cost of keeping it on the track isn't that high in comparison.

Here's an average retail price list of what it will cost you to stay in the the ball game with either class of car at a high level of competition. The big question is: what's the bottom line?

1/10-SCALE ELECTRIC-POWERED CAR

Competitive 4WD kit	\$380
Radio	\$220
Modified motors (2)	\$160
Electronic speed controller	\$200
DC power supply	\$175
Battery chargers (2)	\$500
Matched 7-cell battery packs (5)	\$330
TOTAL	\$1,965

1/8-SCALE GAS-POWERED CAR

Turbo Burns kit	\$650
Radio	\$220
Engine	\$329
Starter	\$50
Glow-plug igniter	\$25
12V battery	\$35
Fuel	\$50
TOTAL	\$1,359

STINGER



Everyone who knows me is aware that I'm a die-hard racer. I rarely drive my cars around the neighborhood just for the heck of it, but if there's a competition going on and speed's involved, I'll be there!

For that reason, I had no real interest in R/C boats—I figured that they just sail around and look nice—until I went on a photo shoot for our sister publication, Radio Control Boat Modeler. We were photographing an electric speedboat, and when RCBM's Editor Rich Uravitch saw my expression, he decided I'd be a good candidate to do a review.

Although I'm an experienced builder of R/C cars, this article is written from a beginning boater's point of view.

• • • • •



Swap your Pirellis for propellers

ON THE FRONT of the Stinger's instruction book, it says: "Warning! This is not a toy!" Great Planes Marine* is wise to include this warning: if you aren't careful, you could get stung! This electric racing boat is definitely not for the rubber-duddy bathtub

brigade. Although its building time is kept to a minimum, the Stinger's performance elevates it well above the toy boat category.

IT'S IN THERE!

The Stinger is a simple boat that boasts twin, in-line, 550 electric motors

joined by an aluminum drive-shaft connector, and this feature makes it a unique entry into the sport racing-boat class. Power is transferred from the second motor to the propeller shaft by way of a second aluminum drive-shaft connector, and there's a submerged prop at the end of the shaft. A mechanical speed control handles the power from two 6- or 7-

cell batteries.

The Stinger has a white, vacu-formed, ABS plastic hull, deck and radio box, and there's a clear, polycarbonate cover that protects the radio gear. A large hatch (held in place by a knurled nylon nut) provides easy access to the inside of the boat while keeping water out.

by WALLY DAVID

SPECIFICATIONS

Type: Electric, monohull sport boat

Length: 24 inches

Beam: 8 $\frac{3}{4}$ inches

Weight: 4 pounds

Height: 4 inches

Hull Material: Vacu-formed ABS plastic

Power Req'd: Two 550 electric motors

Radio Channels Req'd: 2

Sug. Retail Price: \$169.95

Features:

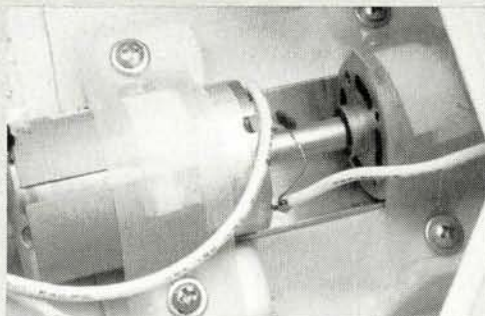
ABS monohull with pre-joined deck; twin, in-line 550-size electric motors already installed; submerged propeller; mechanical speed control with two speeds forward/one reverse and covered radio box.

Comments:

The Stinger is an impressive sport boat that has nimble handling and excellent speed. The twin, in-line drive system provides incredible torque. Assembly took little time, because the manufacturer had done

much of the work. The instructions were very clear. The only problem was the windshield, which would be easier to install if it were pre-bent.

The twin 550 motors are set up in an in-line configuration, with an aluminum shaft connector coupling them.



the antenna tube and the hatch hold-down. Drill two holes through the hatch and down through the radio-box cover. Insert a large, nylon bolt into the forward hole and secure it with a nylon nut. Then, thread a 6-32 hex nut approximately

BUILD THAT BOAT!

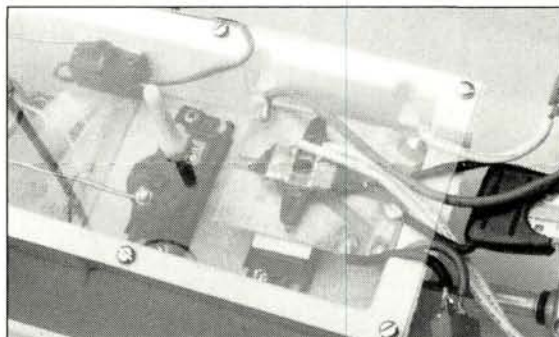
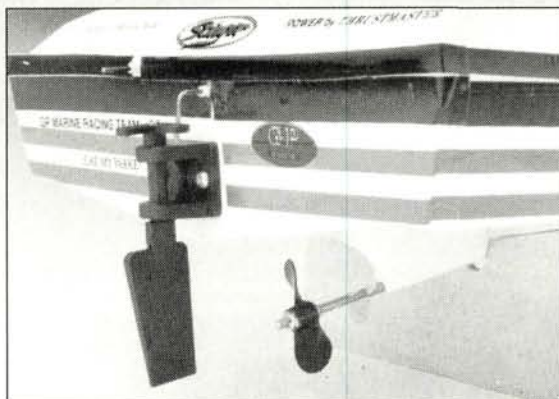
Although I've built and reviewed many R/C cars, this was my first attempt to build a boat, so it was with some trepidation that I opened the Stinger's box. I was surprised—and pleased!—to find that this kit could be called an "ARF" (Almost Ready To Float).

The twin 550 motors are already clamped into place and their shafts connected. Construction begins with installation of the black nylon rudder bearing onto the transom, using the two pre-drilled holes and two 4x $\frac{3}{8}$ -inch screws. The rudder is installed in the rudder bearing and secured with a 2x $\frac{3}{8}$ -inch screw.

Next, install the radio-box cover, which is a piece of clear polycarbonate that's placed over the already mounted radio box. When you've positioned the cover using the marks on the radio box, drill six holes (for the 4x $\frac{3}{8}$ -inch

screws that will hold it in place).

The next step involves



Top: The rear of the Stinger. The switch and rudder pushrods exit the transom through two holes drilled by the author. The sturdy rudder and propeller provide plenty of steering and power. **Bottom:** The clear radio-box cover protects the vital radio gear from water. For better electrical conductivity, Kyosho/Tamiya-style plugs were swapped for Race Prep connectors.



The sharp-looking Stinger is unusually still on the cover of Car Action's sister publication, Radio Control Boat Modeler.

a quarter of the way up the tube, insert the tube into the rear hole, and secure it with another hex nut.

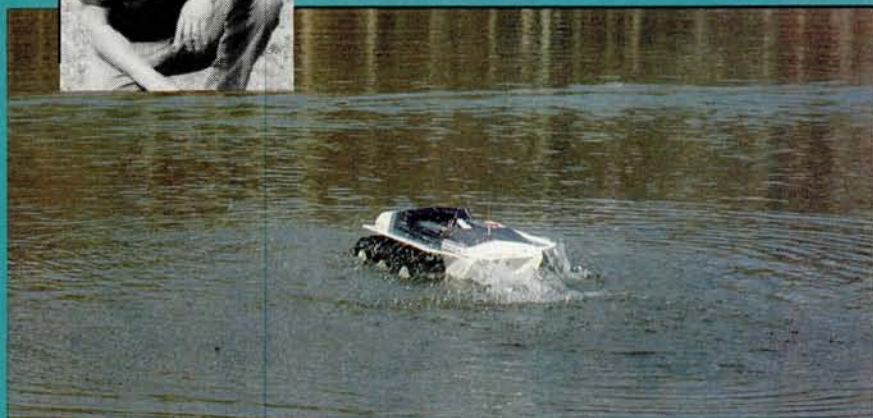
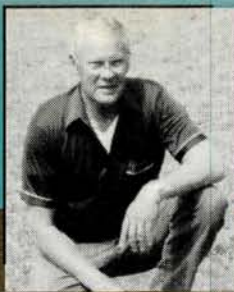
Radio-gear installation comes next. Test-fit two servos into the die-cut, plywood servo tray, then remove them and glue the tray into the radio box with CA. Drill mounting holes in the tray and install the servos. (I used Futaba* S132H servos, which are probably the smallest ones that can be used in the Stinger without making your own tray.)

The receiver should be enclosed in a plastic, waterproof bag and placed into the rear opening of the radio box. I chose to use the receiver battery pack, as I didn't fancy

(Continued on page 119)

RIPTIDE

I ADMIT IT! I'm an old R/C airplane modeler who has flipped over the R/C car scene. At a hobby shop, while picking up some odds and ends for one of my planes, I saw some



H

OME-BUILT

P R O J E C T

ATV Alert!

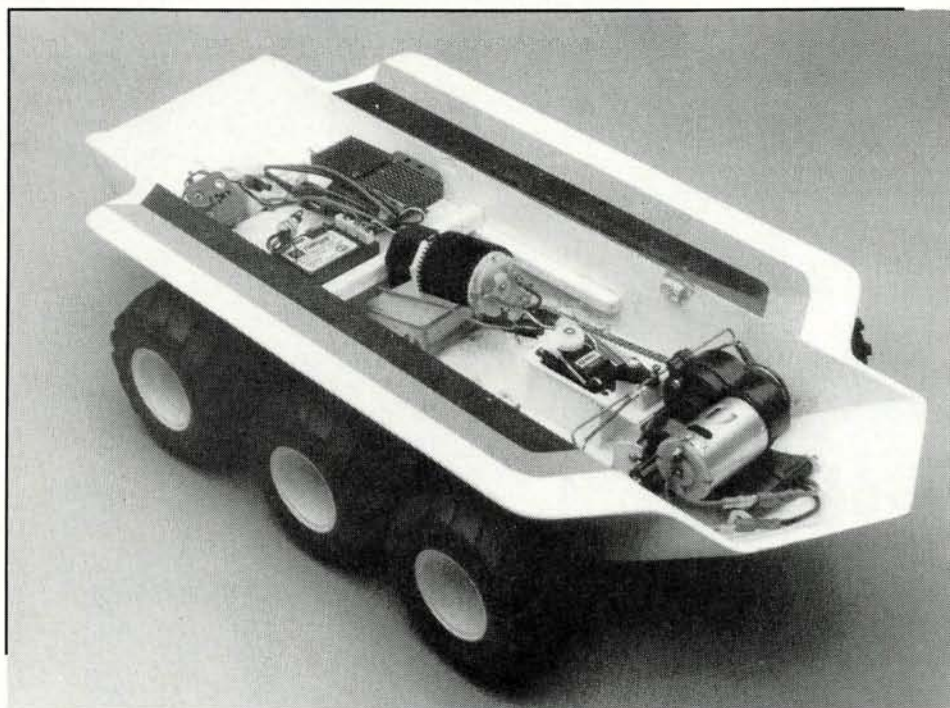
by BOB NELSON

off-road cars sitting on top of the display counter. I pushed down on a front end, squeezed some tires, examined a drive train and steering linkages, and my mind began to reel with the possibilities!

Now I'm really into it and have my own hobby shop (Bob's R/C Cars, Weatherford, TX). I wanted to come up with a vehicle that would be at home on land or in the water so that it could cruise the shores of the



HOME-BUILT PROJECT



Left: The Riptide's hull is made of marine plywood covered with fiberglass. The fenders keep water from splashing where it isn't wanted.

The basic design evolved around six Tamiya Lunch Box wheels because of their buoyancy, lightness and their 4-inch outside diameter.

Brazos River. I'd make it of marine plywood covered by fiberglass, use three-wheeler ATV components, etc.—Riptide!

The basic design evolved around six Tamiya Lunch Box wheels because of their buoyancy, lightness and their 4-inch outside diameter (o.d.). The tires were glued onto the wheels with CA, which was also used to seal the holes in the wheels.

I needed to make the project waterproof, so I decided to make the six drive axles fixed (they don't turn). The drive train uses a diff with disc brakes to lock up either side by way of a servo and sprockets with a pair of stainless-steel drive chains. I used a Lunch Box/Grasshopper type of differential because there were no particular high-speed requirements, the housings reasonably support the axles, and the motor could be mounted high enough to clear the two drive trains.

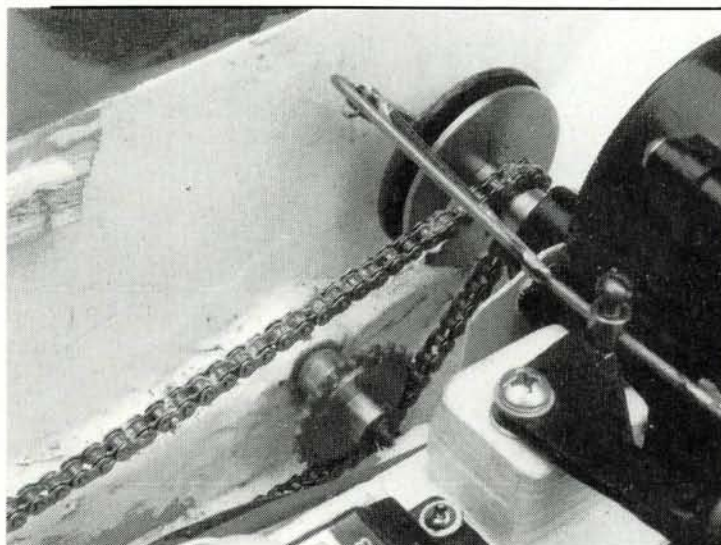
The overall assembly was too wide for the 6-inch body, so the housings were cut off $1\frac{3}{4}$ inches on each side, and new recesses for the outermost bearings were carefully carved into the plastic using a rotary rasp in an electric hand drill. The heads of the axles were also cut off, filed smooth, and reassembled in the diff.

From the diffs' two $\frac{1}{2}$ -inch-diameter sprockets, a pair of chains run to the rear (one chain on the left and one on the right, each to three, 1-inch-diameter, stainless-steel sprockets on each side). The motor/diff final output ratio is approximately 8:1, and the diff-sprocket-to-wheel-sprocket ratio is approximately 2:1, so the overall motor-to-wheel ratio is 16:1.

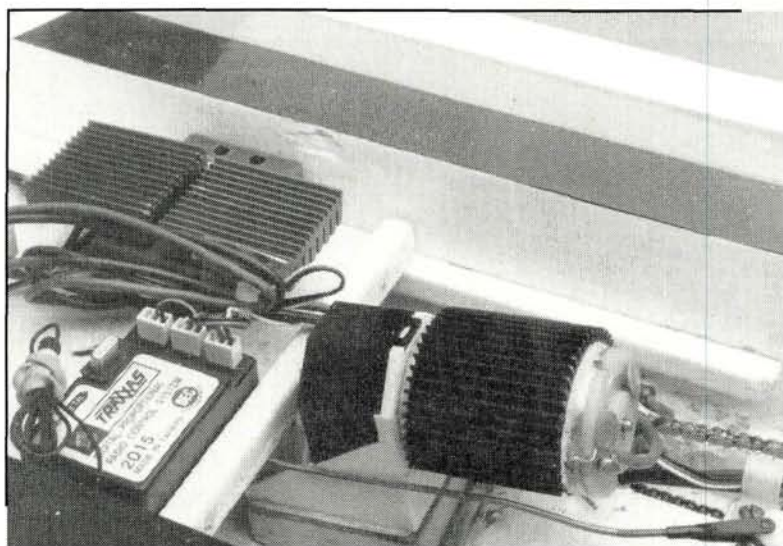
I thought the Lunch Box tires could cushion the ride on land and provide propulsion in the water. I used six, 5mm, Lunch

Box axles with the hex heads cut off to prevent water from entering, and I made a "capsule seal" by silver-soldering two standard, bronze, oil-impregnated bushings to each end of a 1-inch length of brass tube of about the same diameter as the o.d. of the bushings.

I used $\frac{3}{16} \times 3 \times 36$ -inch, medium-density sheet balsa for the hull. Hull design considerations were simple: I needed a boat bow with minimum overhang to make the transition from land to water and



A close-up shows the chain drive system. Also visible is the disc brake, which stops the wheels on either side to make the Riptide turn in that direction.



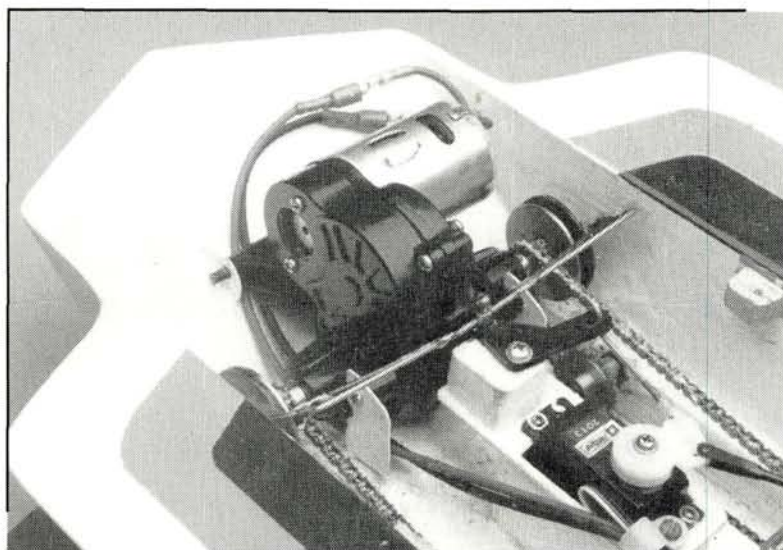
The Traxxas radio and speed control power the Riptide, while the Traxxas Villain boat drive system propels it in the water.

vice versa easy; I wanted fenders that would be part of the hull and would prevent water from splashing where it wasn't wanted; and sufficient floatation for an anticipated final weight of 5 to 6 pounds was vital.

Riptide is 6 inches wide and about 17 inches long at the water line. The water line obviously varies according to the equipment on board, but it averages about 1 inch. The model measures 3 inches from the bottom of the hull to the top separation line. At the water-separation line, I made a seal in the same way I make airplane wing saddles: with a 1/8- to 1/4-inch bead of clear vulcanizing silicone caulk, which I ran around the underside of the hull's top at its outer edges.

Obviously, this wasn't intended to be a detailed, step-by-step description of how I made Riptide, but I wanted to encourage you to try a similar project of your own. Go ahead and jump in!

See ya around the pond!



The Lunch Box transmission keeps the motor up and out of the way of the drive system.

ROCK BUSTER



Original

Two wheel drive.
Rear differential.
RS-380 motor.
Spring shocks.
3 speeds.
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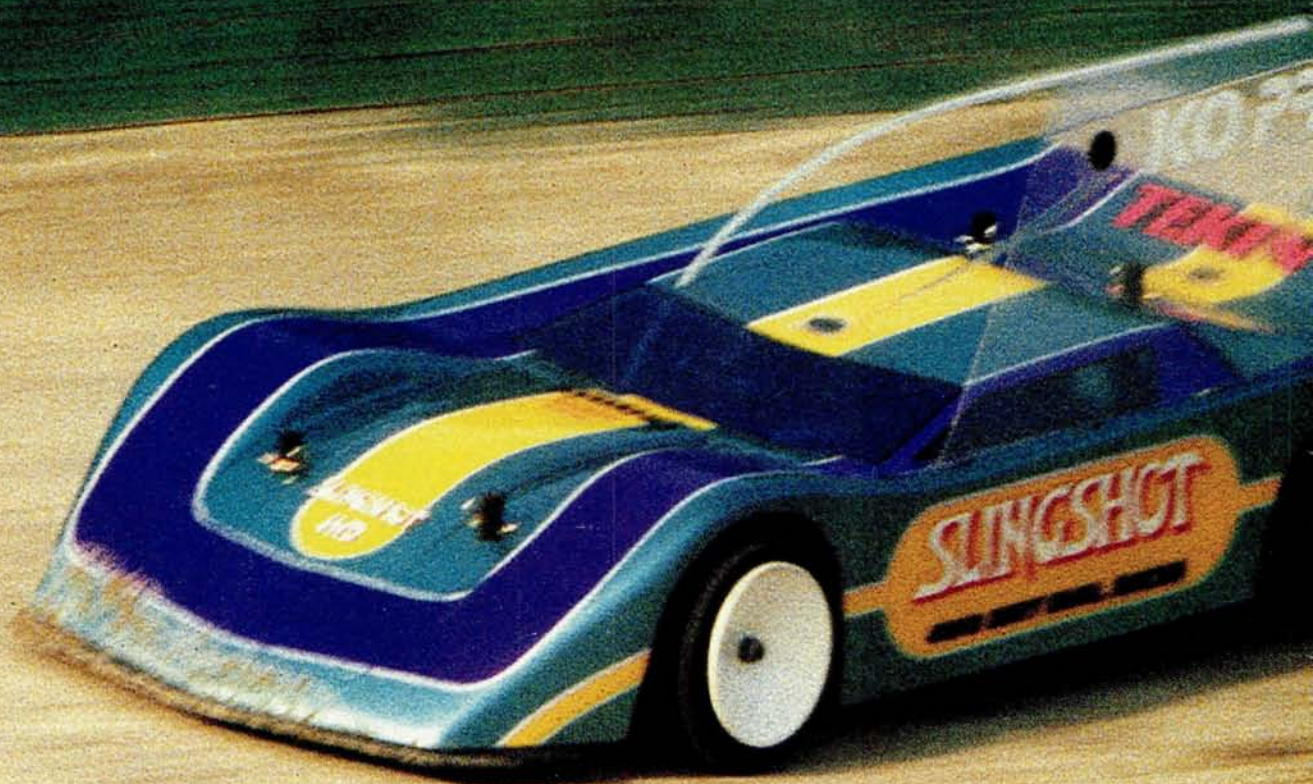
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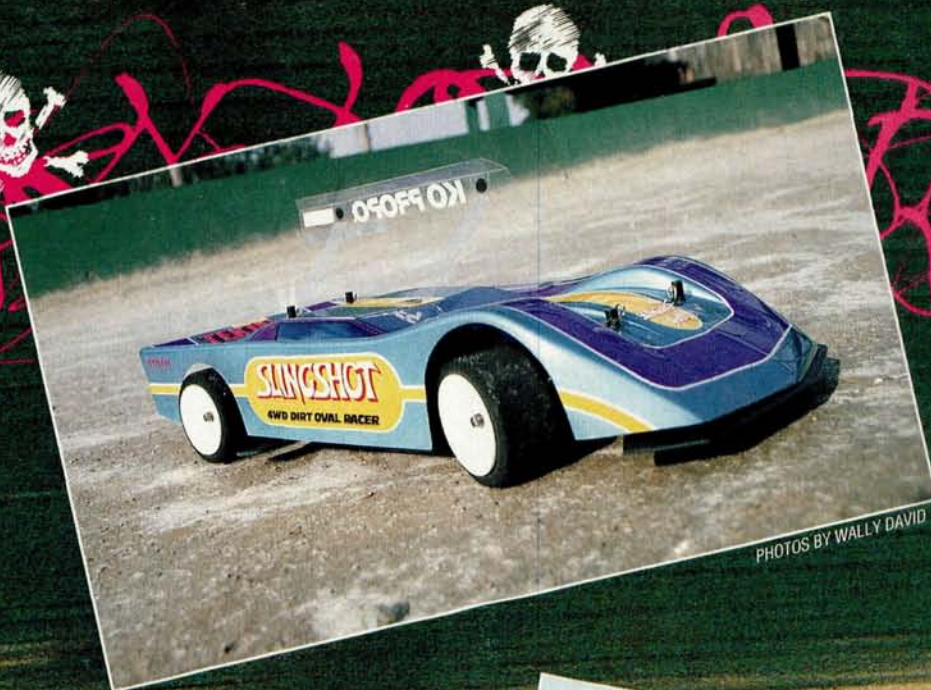
KYOSHO SLINGSHOT

by JIM DAHL



DOUBLE -

ABOUT A YEAR-and-a-half ago, I attended my first dirt-oval race—mostly 2WD and 4WD off-road cars running on a tight, *indoor* clay oval. The competition was close, but I didn't hear that infamous cry of "Marshall! Marshall!" nearly as often as I do at off-road races. A month later, I attended an *outdoor*, clay-oval race, and it was great, too. With its 2WD and 4WD cars and colorful sprint cars, the dirt-oval category continues to



PHOTOS BY WALLY DAVID



BELTED BLASTER

grow in popularity. The 4WD Modified Class is always the fastest, and the full bodies on these cars turn the usual "tangles" between open-wheel cars into bump-and-run affairs. You'll often see two or three cars locked together for several laps!

To get in on this growing segment of racing in the U.S., Kyosho* has released the Sling-shot—a belt-driven 4WD, all-out racer.

KYOSHO

SLINGSHOT

Type 4WD Dirt Oval
Scale 1/10
Sug. Retail Price \$339.95

DIMENSIONS:

Overall Length 20.5 inches
Width 9.0 inches
Height 8.25 inches
Wheelbase 10.9 inches
Track (f/r) 8 inches

WEIGHT:

Gross (w/bat.) 60.5 ounces

BODY:

Type Bolink Devastator*
Material Polycarbonate

CHASSIS:

Type Double plane
Material Fiberglass

DRIVE TRAIN:

Primary Pinion/spur
Transmission Belt drive
Differential None
Bearings Ball bearings with/one-way bearing in front wheels

SUSPENSION:

Type (f/r) Lower A-arms/upper control link
Dampening (f/r) Aluminum, oil-filled, coil-over shocks

WHEELS:

Type (f/r) 3-piece plastic
Dimensions (DxW) (f/r) 2x1.35 inches

TIRES:

Front & Rear Low-profile block spike

ELECTRICS:

Motor 05/540*
Battery 6- or 7-cell stick or saddle pack*
Speed Controller Electronic*

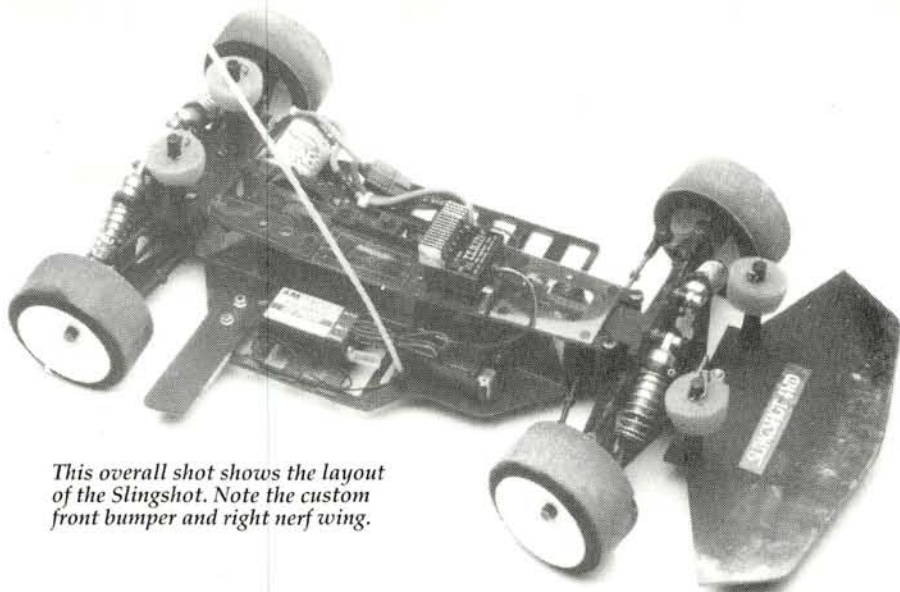
OPTIONS AS TESTED:

KO Propo EX 1 radio with PS 901BX servo; Tekin 600 Pro XT electronic speed controller; Kyosho Mega Motor 14x2; 7-cell 1700 SCE battery; Bolink Devastator body, side dam and rear spoiler kit; Kyosho Option House W-5005 Special Rod set; CKW dirt-oval wheels and foam tires.

COMMENTS:

Coupled with the Mega motor, the reasonably priced Slingshot proved to be fast and sturdy. To prevent damage from dirt and stones, it needs more clearance around and better enclosure of the drive belts, gears and pulleys. The Slingshot is a cost-effective way to be competitive in 4WD dirt-oval racing.

*Not included



This overall shot shows the layout of the Slingshot. Note the custom front bumper and right nerf wing.

THE KIT

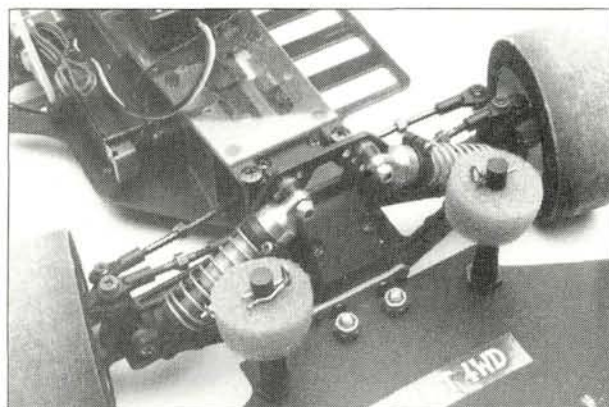
Kyosho's Slingshot is designed for competition. Like all Kyosho kits, the parts are separated into numbered plastic bags, and an instruction manual and almost everything you'll need to build the Slingshot are included.

So, what's different about this kit? It comes in a small, plain box and doesn't include a body, a motor, or a mechanical speed controller. Rather than bridging the gap between small, specialty manufacturers and the large, mass-producers, I think Kyosho simply wanted to get into this hot category quickly.

As unique as the Slingshot is, there's a lot that will be familiar to anyone who has built a 4WD Kyosho car. Many of its parts, e.g., gold shocks and other suspension components, are also found in Kyosho's other 4WD cars.

ASSEMBLY

Like all Kyosho manuals, the informative 24-page instruction manual has excellent illustrations, but it also has some mistakes



The front end of the Slingshot. Turnbuckle linkages replaced the stock ones. Kyosho Gold shocks provide excellent dampening. To protect the body, the author cut simple foam pads.

and shortcomings that are unusual for this manufacturer. The only tool I recommend that Kyosho doesn't supply is a metric scale and/or caliper. This tool makes it much easier to select the right hardware, even though full-size drawings of these parts accompany each step.

In Step 4, use M3x6 F/H machine screws (instead of the M3x6 F/H S/T screws called for) because they fit into the aluminum posts (nos. 85 and 75). Be sure you use thread-locking compound wherever machine screws are screwed into metal parts or into nuts without nylon inserts. Leave the five M3x8 screws slightly loose until



A Kyosho Mega motor provides power to the Slingshot, while a Tekin 600 and KO Propo radio gear gets it around the track. Polycarbonate sheets were cut to help keep dirt and stones out of the drive system.

SLINGSHOT

you've adjusted the play in the two belts. Make sure the rear belt isn't too tight, and then lock these five screws. Later, you can tighten the front belt with the tensioner in the upper deck; this area can be adjusted again later.

The small square hole in mounting plate no. 21 should be opened a little by chamfering its edges where the counter gear fits too closely. You should chamfer and soften the edges of all seven battery openings and of the three slots around these openings. This also prevents the nylon filament tape that holds in the batteries from becoming cut on the sharp edges when the car takes some hard hits.

In Step 7, glue belt-guide "D" (tapered side in) with screw cement, and clean off the excess thoroughly.

In Step 11, I replaced the stock tie rods with Kyosho's Special Rod Turnbuckle



The shock mounts have plenty of holes for different shock positions.

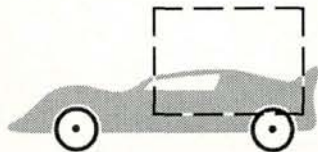
set for easy, fast adjustments at the track.

At this point, I made a few changes and additions. With Kydex, I made a large bumper that extends just beyond the body. To keep dirt and tiny stones away from the belts and gears, I cut Lexan covers to fit over most of the openings and held

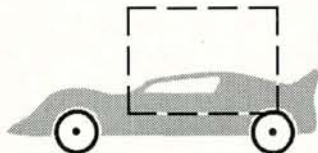
them in place with small pieces of servo tape. Art Smith (one of two friends and expert racers who helped me dial-in this monster) added a small nerf bar ahead of the right rear tire (more on that later).

Two of the hexagonal, aluminum drive washers gave me some trouble because

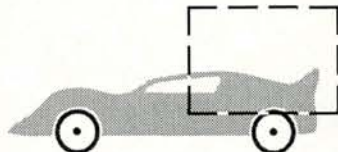
(Continued on page 135)



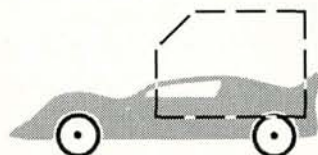
1. The dotted line represents the Lexan side dam in neutral position.



2. Here, the side dam is moved forward of the body's center line to give it more steering.



3. In this illustration, the side dam is moved back for less steering.



4. The leading edge of the side dam has been moved back. This has the same effect as moving the side dam back.

OVAl AIR CONTROL

A large side dam and a spoiler are vital to the handling of a full-bodied, dirt-oval car. The theory behind the placement of the side dam is that the closer the leading edge (front) of the side dam is to the front wheel, the more steering or turning your car will have. So, if you're racing on a long track with wide, sweeping turns and the wing is too far forward, the car will spin out.

Conversely, if the track is short with tight turns, you'll need all the help you can get from the side dam, and this means moving it forward. At first, it's difficult to tell exactly where you should put the side dam, but it's best to start by positioning the leading edge roughly halfway between the front and rear wheels. At this point, don't worry about the length of the

side dam or how far it hangs off the back of the body, because it doesn't seem to make that much difference.

If your car tries to spin out, move the side dam back a little. If the car's steering isn't responsive enough, move the leading edge forward. This is really an experimentation process, but, with the basics, you'll know which way to go.

The rear spoiler has a major effect on the car's handling, but it's much easier to deal with than the side dam. The spoiler controls how the car enters and exits a corner, while the side dam affects the car when it's actually in a turn. The larger the spoiler, the more push or understeer the car will experience. If, when going into the turn, you have to let off the throttle to prevent the

car from "pushing" toward the outside of the track, your spoiler is too large. If, on the other hand, the car spins out, is loose, or oversteers, the size of the spoiler should be increased. As a general rule, start out with a 1-inch spoiler and work from there.

ROAR rules limit the side dam to a length of 14 inches and a height of 5 1/2 inches. The spoiler can't exceed 1 1/2 inches (including any molded-in spoiler). Both the length and the position of the side dam and spoiler require some track time to figure out just what you need. Have a variety of side dams and spoilers ready so that you can try different combinations; otherwise, you may cut a side dam down too far, and you won't be able to use it at all.

DAHM'S

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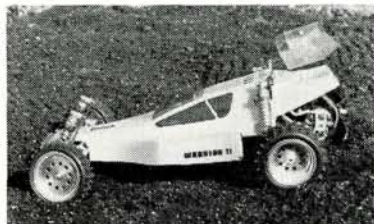
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TROUBLESHOOTING

Welcome to "Troubleshooting"! If you're having a problem that your hobby shop or racing friends can't resolve, give us a shout at Car Action, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to: Troubleshooting, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897.



CALL SMOKEBUSTERS

I need your help. Every time I run my car, my motor sparks and smoke pours out. My dad says I put too much oil in it and that it's just burning the oil, but it's always hot when it sparks.

Also, what kind of modified motor would you recommend for my Hornet? I have a 19-tooth pinion gear on my stock motor. How many teeth should I put on a modified motor?

Ryan Serr

It sounds as though your dad hit the nail on the head. You shouldn't put any oil in your motor—and using it on the commutator will destroy the motor. You should only use one drop of lightweight oil on the bearings or bushings after each cleaning. Special lubricants are available for brushes and commutators, but they aren't the same type of oil used on the bearings. Try cleaning out your motor with a good motor cleaner, and just oil the bearings. You should see a marked improvement in performance; that is, if the motor isn't already damaged beyond repair.

An 18- or 19-turn motor would be the best choice for your Hornet, which doesn't have a lot of room for adjustment when changing pinion gears, and there aren't many optional pinions. Your best bet is to use the smallest available pinion.

BROKEN BEC?

Help! I'm having a problem with my Turbo Optima Mid SE—the radio system isn't working correctly. I've been using a Futaba Attack-R radio system for about two months, and it worked well until now.

When I plug my 7.2V battery into the car, nothing happens. I check all the connections and make sure that everything is turned on and that the AA batteries are fresh. I put it into forward, reverse, etc., on the transmitter, but *still* nothing happens. The battery couldn't be the problem, because when I turn the speed controller by hand, it works. When I plugged in an 8.4V battery, everything worked, but I had to get new wires, and now the 8.4V doesn't work either. Can you please tell me what might be wrong?

Greg Vassar



Assuming everything is connected properly, it sounds as though there could be a problem with the BEC. You mentioned that you could turn the servo by hand, and this indicates that the receiver isn't getting any power. When power is supplied to the receiver and servos, there should be a great deal of resistance when you try to turn the servo manually.

To eliminate the possibility that a bad connection might be the problem, start by checking all the wire connections. Solder joints should be clean, and wires shouldn't be frayed or burnt.

Next, check the BEC (if you're using it): unplug the BEC from the radio and plug in the separate receiver pack that's included in the radio kit. You didn't say whether the steering worked, but if it does, try switching the plugs in channels 1 and 2. If the speed controller works when you turn the steering wheel, you might have a

by STEVE POND

bad throttle servo.

The radio might have a bad throttle channel, but this is much less likely. As a last resort, try a new pair of crystals (use only Futaba crystals for your Attack radio). If you try all these steps and still have no results, I recommend that you send your radio to Futaba for servicing.



TIRESOME TROUBLES

I'm new to R/C racing, and I own a Turbo Ultima and an RC10. My problem involves tires. Traction is always the trick to going fast, but my question concerns traction versus drag.

The track where I usually race has a mixture of traction problems. Some corners are hard-packed dirt and others are soft and loose—a 50/50 mixture of sand and dirt. Assuming that my shock oil, springs and adjustments are all correct; using a three-row, long-spike Schumacher Cat tire with about a 5-degree camber seems to work best on the front for cornering. Do these wide fronts cause much of a drag problem to these 1/10-scale 2WD racers owing to push? Is the amount of speed lost to push enough to worry about? Or do their cornering capabilities (compared with narrower tires) outweigh the drag problem? Should I continue to try narrower, long-spike tire combinations and work with my camber adjustments, or should I keep on truckin' and not worry about it?

Bob Graham
Poplar Bluff, MO

Off-road tires have always been the subject of debate. Tire choice is a highly subjective matter that's greatly influenced

by track conditions. It's correct to assume that wider tires create more drag than narrow ones, but when the running surface is soft, narrow tires sink in and slow the car, whereas wider tires ride on top. The long and short of it? Don't worry about it! There are many more critical elements to be concerned with besides a 3/8-inch difference in tire width. Find the tires with which you're most comfortable on your track and stick with them; don't be concerned with the friction losses. If your lap times are faster with wider tires, use 'em!



HITTING BOTTOM

I own a JR-XT, and I think it's the best truck yet, but I have a few problems. My rear shocks always seem to bottom-out, even when the springs are fully adjusted to the tightest limit. Without adding rubber tubing, is there a way I can fix them?

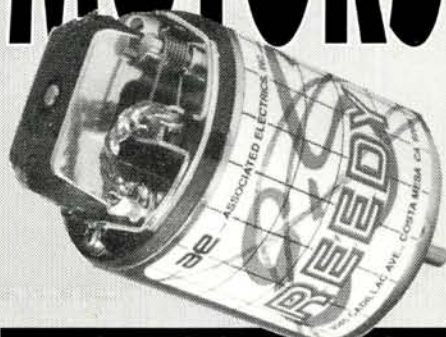
I have a Novak T-4 speed control with a Speedworks 427 motor and a Futaba 2PB Magnum Sport. After running 6 or 7 minutes, the speed control makes the car take off by itself and it gets really "squirrely." Can you tell me how to resolve this?

Tim Savage
Fullerton, CA

You mentioned one of the most common problems with suspension, and your solution is one of the most common mistakes racers make when trying to correct it. The springs on the shocks are used only to dial-in handling and ride height. If the suspension is bottoming-out, tightening the springs will only raise the ride height

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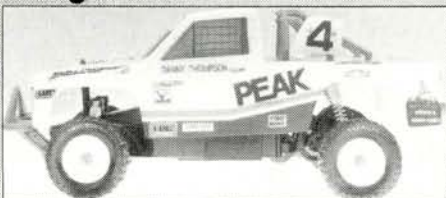


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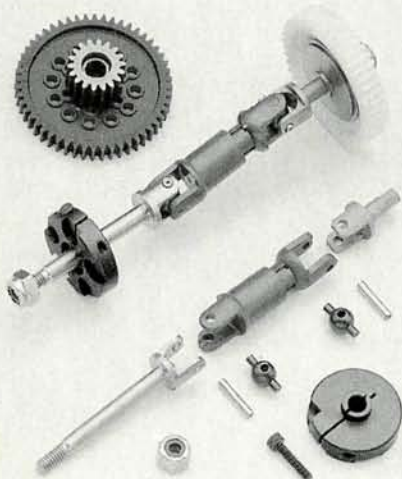
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TROUBLESHOOTING

and the center of gravity. Use a heavier oil, which will slow the dampening and keep the chassis off the ground.

As for the speed-control problem, this is normal when the battery's voltage level falls below what the receiver needs for proper operation. When this happens, you can simply pull the car off the track and put in a fresh battery, or if you really want to milk the battery to the last drop, a receiver pack might be a good idea. Any small, 4-cell pack will do. Just clip the red wire from the speed control onto the receiver, and install the receiver battery in the battery plug on the receiver.



STUCK IN GEAR

I have a modified Kyosho Turbo Ultima with a Trinity Joel "Magic" Johnson 41,000rpm motor. I'd like to install the new Ultima Hyperdrive belt system, but I have a problem. The hex in the M4x4 setscrew that holds the final pinion gear is completely stripped, and I have no way to loosen the screw. Because I can't remove the final pinion gear, it's impossible to remove the counter gear (the top exterior gear that causes the differential gear to turn forward). Unless I can remove the counter gear, I can't install the Hyperdrive kit without buying a whole new gearbox. What should I do?

Matt Kandel
East Rockaway, NY

There are several ways to remove a stripped grub screw, but the two easiest and safest methods would be to use an "easy-out" or a gear puller.

An easy-out is a small tool designed specifically for removing stripped or broken bolts or screws. A tap handle is inserted into the stripped portion of the grub screw and turned counterclockwise. The easy-out's tapered spiral teeth "bite" into the grub screw, and this allows you to take out the screw. In the case of a broken bolt or screw, a hole must be drilled to use the easy-out, but the results are the same.

If an easy-out can't do the job, use a gear puller. This tool grabs the back of the gear and presses it on the shaft to which the gear is mounted. By tightening the puller, you can pull off the gear even if the grub screw is in place, although the screw might scratch the shaft slightly.



RAGING RAMPAGE

I need your help badly. My Kyosho Rampage 10 has an engine problem. When I broke-in the CZ-R engine, I followed the instructions that come with the kit. I opened the needle 3 1/2 turns, and after a few yanks, the engine started. After going through a full tank, I closed the needle approximately 30 degrees. I had no problem until I had the needle setting at 2 1/2 turns. When I decided that it was sufficiently broken in, I closed the needle by 1/2 turn. When I went to full throttle, the engine died. I started the engine again, and, once again, it died. It was late, so I packed my stuff and went home, not realizing that this was the beginning of my disaster.

The next day, the engine wouldn't keep running; it died after a few seconds. I opened the needle setting to 3 1/2, but nothing changed. I tried to close it gradually to find the correct setting—no such luck.

I lost my patience and sent the Rampage back for repair. They changed the connecting rod, but I still have the same problem, and I've even had to change the new connecting rod because it broke.

I thought about disassembling the engine and cleaning it thoroughly, or replacing the liner and the cylinder sleeve. Do you have any idea what the problem is?

Samuel Bernas
Macomb, IL

Let me start by explaining some of the basics of 2-stroke engines. The crankcase in this type of engine contains no oil; the oil is mixed in with the fuel. Therefore, the amount of fuel that's delivered to the

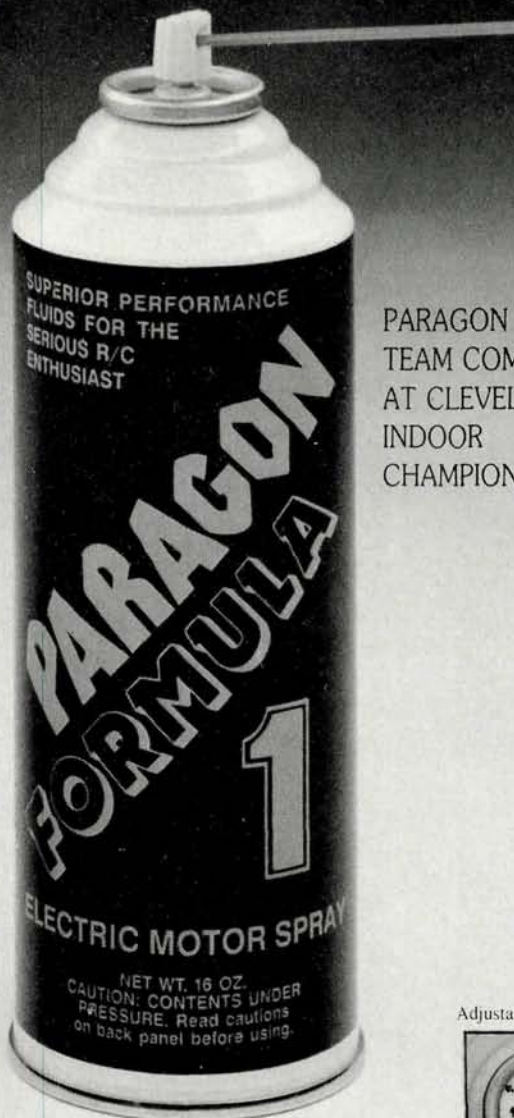
engine directly affects how much lubrication it will have. For maximum performance, the engine must receive the proper mixture of fuel and air, and this is accomplished by turning the needle, as you mentioned. The needle you adjusted controls the mixture in the high-rpm range, but there's a second adjustment for the air/fuel mixture that controls the amount of fuel at idle and in the low-rpm range.

If either of these adjustments isn't set properly, you'll have an undesirable fuel mixture—it will be lean or rich. "Lean" means that there's too much air; "rich" means there's too much fuel. When an engine is running lean, it often quits when running in the high-rpm range, and if the low end is lean, it might not even start. On the other hand, if the engine is rich, it will sound as though it has a frog in its throat on the high end, and it will often load up and stall if left to idle for more than a second or two.

It sounds as if you started off well with your CZ-R engine: turning the main needle out $3\frac{1}{2}$ turns for the initial tank of fuel ensures that plenty of oil is given to the engine for its initial run. After the first or second tank of fuel, you can turn in the mixture screws until the engine is running properly. When you begin to adjust the mixture screws, make sure that you only go $\frac{1}{8}$ turn at a time. At $2\frac{1}{2}$ turns, you were in the ballpark, but when you went in $\frac{1}{2}$ turn, you probably went too far to the lean side. You mentioned that it was late in the day; this is when the air gets colder and denser, so the mixture was more lean than usual. You probably ran the engine too lean and the piston stuck in the bore, and this would stretch the connecting rod.

Reset the main needle to about $2\frac{1}{2}$ turns and try to start the engine. If it starts, but doesn't want to idle, or if it stalls when braking, check the idle-mixture adjustment screw, which is on the side of the carburetor. Without touching the throttle, start the car and see how it runs. If it runs for a few seconds and dies with a good amount of smoke, it's probably set too rich and the excess fuel is extinguishing the glow plug. In this case, turn the adjustment screw clockwise $\frac{1}{8}$ turn until the engine runs smoothly at idle for more than 10 seconds or so. If the engine is slow to pick up speed, it's still too rich. It's easy to tell if the engine is running lean: it won't start, or it will stall as soon as you hit the throttle.

TURN UP THE BOOST!



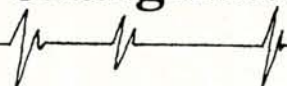
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What? No trick stuff?

INSIDE THE



by STEVE POND

WINNING TRUCK



BY NOW, most of you have heard that Team Losi* cleaned up at the first ROAR Truck Nationals in Las Vegas, NV, with its new JR-XT racing truck. If you haven't heard any numbers yet, how does the fact that 19 of the top 20 trucks in the Stock and Modified 2WD A-Mains were from Losi grab ya?

At this level of racing in any class cars or trucks—competitors usually start with a kit and either modify or replace many

of the parts so they can go *really* fast.

Shown here is the truck that Kyle Reed drove to victory in the 2WD Modified Class at the ROAR Nationals. I'd like to say we have an awesome exposé in the making, and that we're ready to bare all to our readers and to show you the trick parts so that you can get your machine on track. Well, as luck would have it, Reed managed to stomp out the competition with a *bone-stock JR-XT!*



The front of Reed's JR-XT uses the stock front shock tower and the shock with silver, soft springs.

PHOTOS BY STEVE POND

In the absence of modifications for our bare-it-all pictorial, a brief overview about what makes this such an awesome racing truck will have to suffice.

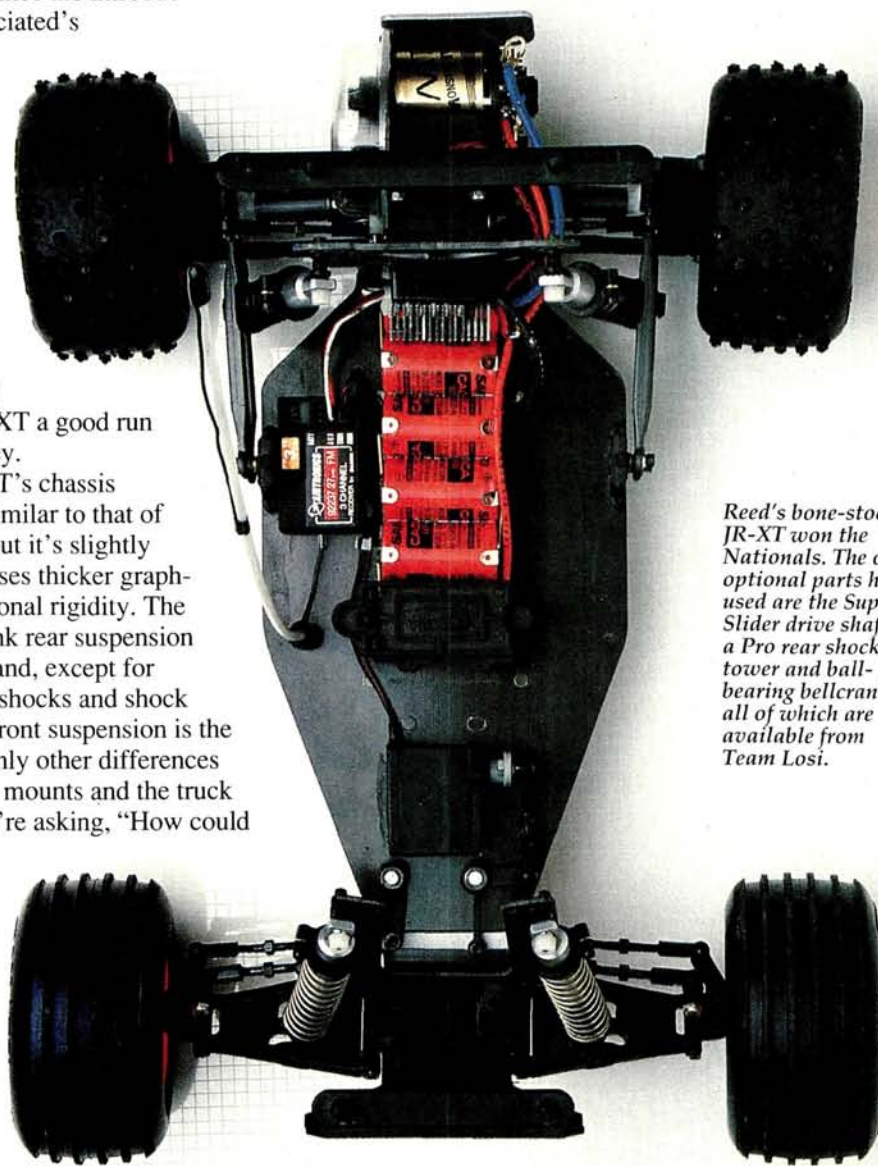
The most obvious element in favor of the JR-XT's performance is that it's based on the highly successful JR-X2 2WD car. This car has made the most serious waves in R/C racing since the introduction of Associated's RC10.

Likewise, The JR-XT is bound to send in some big breakers because there aren't really any complete kits that will give the JR-XT a good run for the money.

The JR-XT's chassis looks very similar to that of the JR-X2, but it's slightly longer and uses thicker graphite for additional rigidity. The same five-link rear suspension is standard, and, except for longer front shocks and shock towers, the front suspension is the same. The only other differences are the body mounts and the truck body. If you're asking, "How could I go wrong with this truck?" you'd be hard-pressed to find a reason!

To place high in any race, you have to drive your tail off, but what else did the Losi crew do to make their trucks so fast?

Nothin'! If you don't believe me, take a look at the pictures. Those of you with a keen eye might have picked out the white outer halves of the universal drive shafts, but these are really the same part; they're just molded of a different material that allows the drive shafts to compress and expand more



Reed's bone-stock JR-XT won the Nationals. The only optional parts he used are the Super Slider drive shafts, a Pro rear shock tower and ball-bearing bellcranks—all of which are available from Team Losi.



Although an MTM motor is shown here, Kyle used a Team Losi Jr.'s Choice to win the race.



Attached to the Pro rear shock tower is a Tekin ESC 600 speed controller and a pair of stock shocks with black, progressive-rate springs.

easily under acceleration. Called "Super Sliders," they're available through Team Losi (part no. A3019). The Losi team also used optional ball-bearing bellcranks for the steering (also available through Team Losi).

Really want to know about the setup Reed used to make his truck handle so well? He simply paid close attention to detail when he put it together, and he made sure that everything worked correctly. What about the goodies? Reed used a Tekin* ESC 600 electronic speed controller, an Airtronics* radio system and a Jr.'s Choice motor from Team Losi (although when we received the truck to photograph it, a Monster Truck Motor was installed in it). For the shocks, Reed uses soft, silver springs on the front and progressive black springs in the rear, and Team Losi 20WT shock oil, front and rear. (Keep in mind that shock oil is a tuning aid, and what works on one track might not work on another).

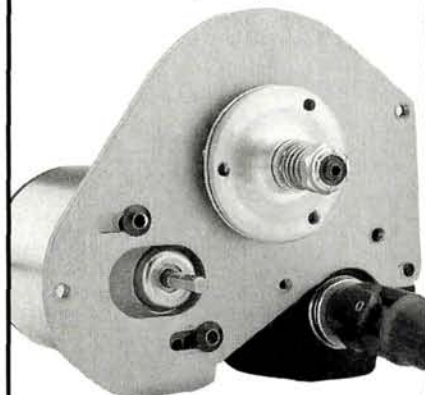
The bottom line? Reed's truck—and those of many others who ran well—were straight from the kit, not laden with custom parts that the average racer can't find or afford. Congratulations to Team Losi on the success of its new JR-XT, and to Kyle Reed and the others who finished well at the Truck Nationals. Maybe next year they'll have some competition!

*Here are the addresses of the companies mentioned in this article:

Team Losi, 1655 East Mission Blvd., Pomona, CA 91766.
Tekin Electronics, 970 Negocio, San Clemente, CA 92672.
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EGRESS

PHOTOS BY STEVE POND & BILL O'BRIEN



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(Continued on page 87)

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Overall Length 17.25 inches
Width 9.38 inches
Height 7 inches
Wheelbase 10.75 inches
Front Track 8 inches
Rear Track 7.75 inches

WEIGHT:

Gross (w/bat.) 3 pounds,
8 ounces

BODY:

Type Off-road buggy with belly pan
Material Polycarbonate

CHASSIS:

Type Single plane
Material Graphite

DRIVE TRAIN:

Primary Pinion/spur
Transmission Shaft drive
Differentials Front & rear ball diffs
Bearings Ball bearings

SUSPENSION:

Front: Type Lower A-arm; upper
control link
Dampening Oil-filled, coil-
over shocks
Rear: Type Trailing arm
Dampening Oil-filled, coil-
over shocks

WHEELS:

Front: Type One-piece, plastic,
unidirectional spokes
Dimensions (DxW) ... 2x1 inches
Rear: Type One-piece, plastic,
unidirectional spokes
Dimensions (DxW) 2x1.38
inches

TIRES:

Front/Rear Pin spikes

ELECTRICS:

Motor 05/540*
Battery 6-cell stick*
Speed Controller Electronic*

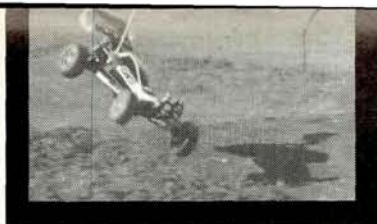
OPTIONS AS TESTED:

Tamiya Technigold modified motor;
Novak 4 electronic speed controller and
mini receiver; Royal Titan miniservo;
Sanyo 7-cell SCE battery pack.

COMMENTS:

The Egress is an aggressive successor to the Avante, and it incorporates the improvements that produce a topnotch 4-wheeler. There are still some problems with its steering system, but they're nothing that can't be overcome to make it go where you want it to.

* not included



EGRESS

for average racers, and its metal "works" just didn't hold up under the rigors of wheel-to-wheel racing.

So they're trying again. This time, they've let loose the Egress, which is a 4WD, mid-engine racer with a price tag that hovers high in the ozone layer. Its design resembles that of the Avante, but Tamiya's designers have spent the last three years changing many of the Avante's features—the ones they heard complaints about—and they've further refined its design. Indeed, the Egress may be Tamiya's way into the world of competition 4WD racing.

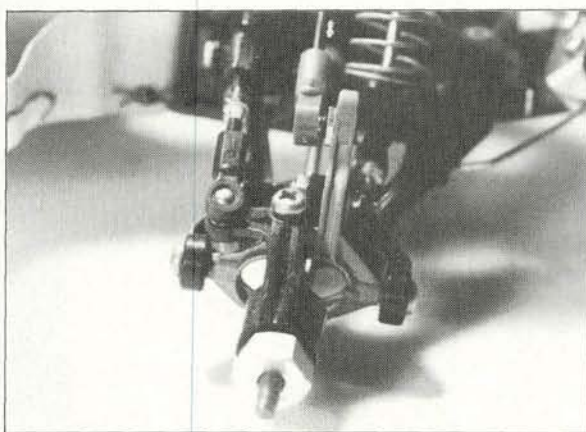
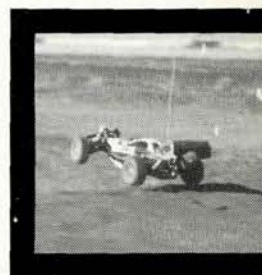
ENTER THE EGRESS!

When assembling a kit, I first empty all the screws out of their bags and into labeled containers so that they're easier to find during assembly. The Egress has a lot of screws—exactly five bags full. Absentmindedly, I grabbed the largest bag, ready to groan under its

weight. A look at the front of the box told the story. These were titanium screws, and if you missed that day in metallurgy class, titanium is one of the strongest, lightest metals currently available.

That sets the tone for the Egress. All the metal parts are of either titanium or aluminum. (OK, the complete ball-bearing set is made of steel.) The chassis and the radio plate are graphite, as are the shock towers and the cross-member for the steering bellcrank. The bulkheads and the suspension arms are plastic. Even the reinforced sections of the lower chassis are reinforced with additional graphite slugs.

The Egress is based on the Avante, but several major



The front suspension: the hub carrier is the only aluminum part. All the other components are plastic.

weight. Have you ever lifted something that you thought was very heavy but really weighed almost nothing?....

I retrieved the screw bag from the corner where it landed and gave it a thorough once-over. The contents didn't look like the usual silvery-orange Tamiya screws, and they certainly

changes have been made. The front shock towers are about 1/2 inch higher than on the Avante, and the shock angle has been made more nearly vertical. Most of the aluminum parts on the front end have been replaced by tough plastic ones.

At the rear, the Egress has a



E G R E S S



trailing-arm-type suspension, as does the Avante and Losi's JR-X2 and JR-XT. (On the Egress, it's only a three-point suspension system, whereas the JR-X vehicles have a five-link system.) Gone, however, is the complicated series of aluminum sleeves and pivot balls that plagued the Avante. These have been replaced by a single resin-filled angle bracket. The arrangement eliminates rear toe adjustments (until someone comes up with a slide bar for the chassis side link), but it also removes the vulnerable breakage points for which the Avante was well-known.

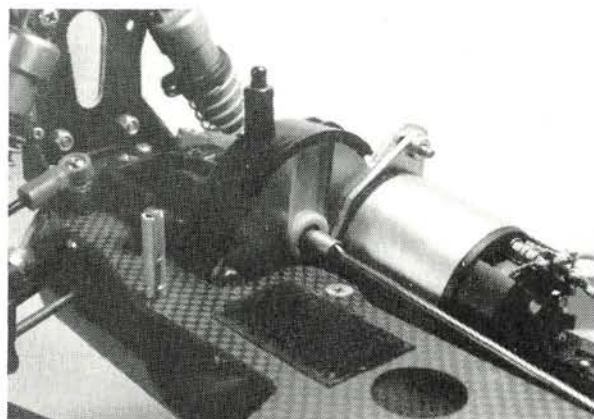
One beneficial change (and one that shows how well Tamiya is getting along with its program) is the switch to a narrower front wheel. The Avante used front and rear wheels and tires of the same size, but the Egress has 1.5-inch-wide rear tires and 1.25-inch-wide tires up front. (Yokomo and Schumacher use this ar-

equally massive meats fore and aft.

Like the Avante, the Egress has its battery pack mounted under the right side sandwiched between the radio plate and the chassis. The car is designed to accept only a 6-cell pack, and radio-plate columns and a removable gate hold it in place.

If you're enterprising enough, you can wire in a seventh cell and mount it midway on the radio plate, but be aware that the additional length of wiring needed for that seventh cell would probably make John ("Scoping Out") Rist turn over in his lab. It's one of those ideas that are great if you want to test out the car at the edge of its speed level when you're setting up the suspension, but it isn't something you'd want to consider seriously under most competitive circumstances.

The Egress kit has no motor option or speed controller. The choice is left to you. Generally speaking, the



The gearbox is completely sealed, so pinion changes are slow and tedious.

angement very successfully on their 4WD cars.) As the typical R/C 4WD car is actually a rear-driven, front-assist drive assembly, there's little point to having

smaller your radio equipment, the better off you'll be. This definitely isn't the place for a full-size servo, and anything heavier than a Novak* or Tekin* receiver/speed controller combination is



ruining the car's lightness.

ERECTING THE EGRESS

You needn't ever worry about a Tamiya assembly manual. If Tamiya had a manual for it, you could probably create the universe in four days, instead of the six it took when no instructions were available. The Egress manual is as good as you'd expect.

The car itself is amazingly easy to assemble; the toughest part is the correct trimming of the compound curves in the lower polycarbonate undercowl. Even the front and rear ball diffs are a snap. The front end can be set up to have a one-way or locked differential.

When you get to the wheels and tires, you'll notice that Tamiya has neglected to put air holes in the wheels to allow the tires to re-form if they collapse on impact. After an impact, they'll return to their original shape, but the process is incredibly slow compared to the speeds at which the Egress will be travelling. I strongly recommend that you use foam inserts in both the front and rear tires to prevent them from becoming deformed. Tamiya markets rear inserts that fit well, but I've yet to find fronts that work correctly. As a last resort, I trimmed some rear foams down to the proper width for the front tires, and that seems to work. (*Editor's note: it might be just as easy to drill some small holes in the wheels.*)

Tamiya uses metric 48-pitch gear, which aren't compatible with regular American 48-pitch gears. To minimize the confusion, the Egress comes packed with four pinions, in 17- through 20-tooth sizes. For the correct pinion/motor recommen-

dations, read the instructions at the bottom of page 16 in the manual. The final ratios with these pinions range from 1:10.67 to 1:9.07.

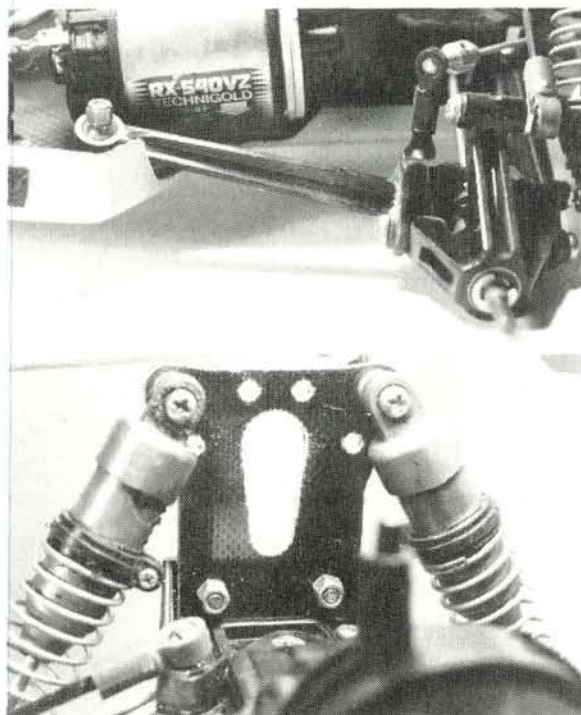
ERRATIC EGRESS

I loaded the Egress with Novak radio gear and a mini Royal* Titan servo. My motor is a Tamiya Technigold with the 20-tooth pinion recommended by the manual. Much to Associate Editor Steve Pond's chagrin, I stuffed seven SCE cells under the body. Steve is a purist and, as I handed the car to him for the photo session at the track available to R/C Car Action, he headed for the door mumbling, "It was only designed for six cells." Push the envelope, Steve; always push the envelope!

The Egress found its way back to me, and Pond pegged it as being sound, but sometimes unpredictable (part of which I'd expect of a car set to the manual's suspension specifications and not dialed-in to the track). The "unpredictable" tag worried me, though.

In Long Island, I found an outdoor track that really hadn't yet opened for the season, and I ran the Egress around the loop for a few dozen laps. Steve had judged it correctly, and I sat there in the slightly less-than-tropical weather mulling over the body and the chassis.

The dynamics of the shaft drive and battery placement give the Egress an odd steering arrangement. Tamiya has correctly gone with a ball-bearing bellcrank, but the steering-servo placement is so far to the rear of the bellcrank that the steering rod is 4.25 inches long. When you hit bumps, a rod of that length acts like a spring and allows the front wheels to react to inputs



Top: The rear arms are actually three-point link systems, and as they're plastic, they're much less likely to break than those on the Avante. Bottom: Unlike the front mount, the rear shock mount permits a variety of height and angle adjustments.

from the track's surface as well as from the transmitter.

The problem is compounded by the steering servo-saver Tamiya supplies. It's the same as the one used in the Madcap, which is Tamiya's bottom-of-the-line, entry-level car. The servo-saver works well on the Madcap at its performance level, but it doesn't work as well on the Egress. There's too much slop at the Z-bend in the rod, and the saver reacts too quickly to road torque transmitted from the rod and bellcrank.

EGRESS PROGRESS?

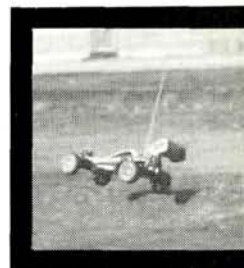
Only two options are listed in the Egress manual: front and rear universal posi joints. (The stock setup is standard universals up front and dog-bones at the rear.) The car comes with everything else, but the stock servo-saver must go, probably to be replaced by a Kimbrough* servo-saver.

• Likewise, the steering rod

will soon become history in favor of something a little stouter. I'm also toying with the idea of switching to a Futaba* S133 microservo in the hope that its smaller size will let me mount it slightly further forward than the stock location so that I can shorten the steering rod. I aim to knock an inch off that rod, and it looks possible. After that, I'll get serious!

**Here are the addresses of the companies mentioned in this article:*

Tamiya/MRC, 200 Carter Dr., P.O. Box 267, Edison, NJ, 08818.
Novak Electronics Inc., 128-C E. Dyer Rd., Santa Ana, CA 92707.
Tekin Electronics, 970 Calle Negocio, San Clemente, CA 92672.
Royal Products Corp., 790 West Tennessee Ave., Denver, CO 80223.
Kimbrough Products, 1430 East St., Andrews Place/Unit F, Santa Ana, CA 92705.
Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718. ■



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BULLET RC-X2

(Continued from page 26)

difficulty. This was a happy accident: the Losi rear shocks are *perfect* for this chassis.

The final tweaking included approximately 2 degrees toe-in and about 2 degrees negative camber at the rear. The

front wheels were set straight (0 degrees toe-in), and the Robinson steering blocks were set with 20 degrees caster and about 2 degrees negative camber.

This kit uses the best of the best, so you'd expect it to fly—and it does! After I'd dialed-in the car, its handling and response were excellent. The car took ev-

ery choppy jump without nosing down, and it didn't squat or go out of control when it landed. The RC-X2 can take the roughest corner aggressively and come out straight. Down the straightaways, it didn't wander or dart back and forth over the bumps.

(Continued on page 103)

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In 1/10-scale on-road racing, battery matching and charging are critical if you want to stay in the lead.

COMPETITION ELECTRONICS

LINEAR TURBOCHARGER

MATCHIN' & CHARGIN'— ALL IN ONE!

by RICH HEMSTREET

IF YOU EVER WANT to kill some time at a race, just ask the person pitting next to you, "What's the best way to charge SCEs?" The number of racers who overhear your question will determine how much time you'll kill. You're likely to hear all sorts of ideas, from week-long trickle-charging to nuclear fusion. Of course, once the debate is raging, you can quietly slip away and have the hot-dog stand all to yourself while everyone else continues to argue.

Because SCE batteries are so different from SCRs, many companies are developing new chargers for the finicky SCEs, which don't perform as well when charged with a hard pulse as they do with a constant-current charge. For this reason, Competition Electronics* has introduced a new Linear version of its popular Turbocharger.

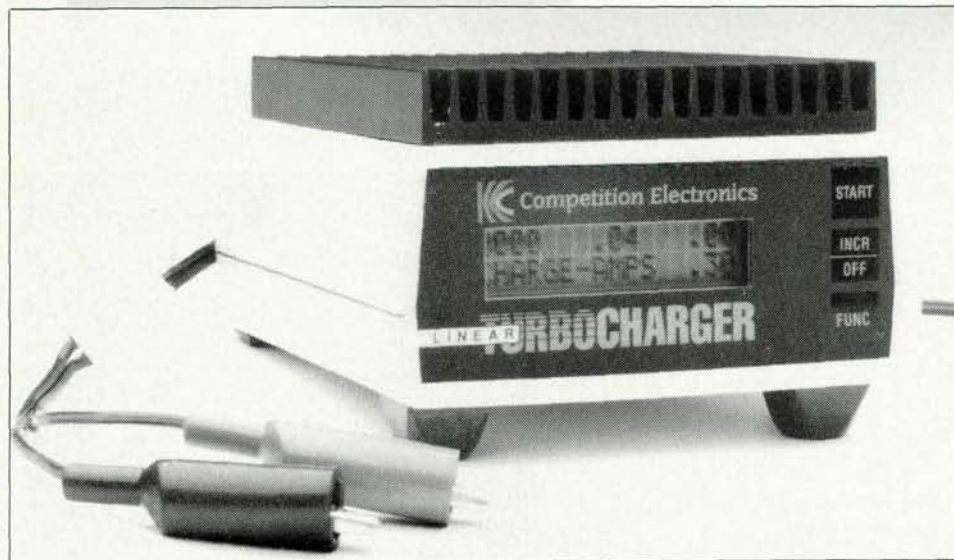
CELL CYCLER

The Linear Turbocharger is very similar to Competition Electronics' standard Turbocharger. Both are capable of charging one, four, six, or seven cells at a time, at a rate of up to 10 amps on four or more cells. They can also cycle cells for matching and rating.

In the cycle mode, batteries are peaked, trickle-charged for 2 minutes and re-peaked. The cycle peaks twice for single cells and three times for multiple-cell packs. After the final peak, the cells are automatically discharged. The 4-, 6- and 7-cell packs are discharged at a 4-amp rate; single cells are discharged at 10 amps. (The standard Turbocharger discharges single cells at 8 amps.) At the

end of the discharge, the Turbocharger displays the 10-amp discharge equivalent. The discharge mode can be used separately from the cycle mode.

You can power the Linear Turbocharger with a lead-acid battery (e.g., an automobile battery) or a regulated DC power supply (e.g., Monolithic's* Max-Amp 35Q); however, you can't use an automotive battery charger because it requires constant DC voltage input to deliver its constant-current output.



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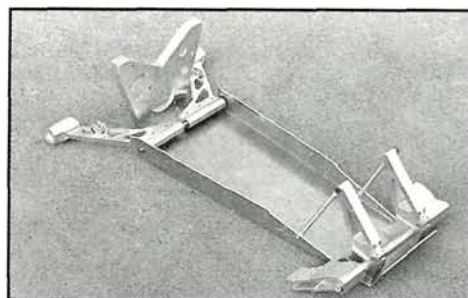
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LINEAR TURBOCHARGER

(Continued from page 92)

TRICKLE-LESS

The current SCE charging theory calls for a 3- to 4-amp rate with a linear charge. The Linear easily charges at this rate until the pack peaks; then it shuts off (unless it's in the cycle mode), and there's no trickle-charging following the peak. If you want to trickle-charge with the Linear, simply set it at a .3-amp rate and press the start button. (The Linear wasn't designed with automatic trickle-charging; one school of thought is that trickle-charging SCEs takes the top off the charge, and this lowers the voltage while increasing the run time.) It's usually recommended that you re-peak the batteries just before you go to the track. To do this, set the Turbocharger at 8 to 10 amps and quickly re-peak.

MATCHMAKER

The Linear Turbocharger can also be used for battery-matching and pack-rating. Single cells are discharged at the full 10-amp rate, compared to the 8-amp rate on the standard Turbocharger. It takes a while to run cells through one at a time, but you can save money by passing up matched packs and making your own.

Although the common matching numbers (i.e., for SCEs, 650 to 700) are based on a 10-amp discharge rate, racers continue to disagree about the ideal discharge rate for 4-minute racing. A 20-amp rate seems to be gaining popularity, although some teams are using 24-, 27- or even 30-amp discharge rates. The higher the discharge rate, the more stress is put on the cells—and the greater the chances that a weak cell will give out during matching rather than during the A-Main.

Revtch* is working on an expansion board that will plug into the Turbocharger and give it full 20-amp discharge capabilities for single cells and a 24-amp rate for packs. The Truth Detector Turbo will work with both the Linear and the standard Turbochargers. This unit should be available from Revtech soon.

When cycling 4-, 6-, or 7-cell packs, the Linear actually discharges at a 4-amp rate, then converts that to an equivalent 10-amp discharge number at the push of a button. The average pack voltage is also displayed after cycling.

This pack-cycling mode is the most valuable for rating packs you're already

(Continued on page 158)

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TEAM LOSI

TRUCK RACING

by RICK HOULE

MONSTER TRUCK RACING is quickly becoming one of R/C's most unexpected phenomenons. In just a few years, what began as a recreational alternative to hard-core R/C competition has exploded

**Warning: This JR-XT
could be hazardous to
your conversion truck**



PHOTOS BY RICK HOULE

into a zany world of wild and woolly off-road racing and nurtured an industry all its own!

Some of the first monster trucks to be raced (Big Bears, Blackfoots, etc.) required major overhauls

to be competitive on typical off-road tracks. After all, monster trucks weren't originally designed to be raced at all! But no matter how much money you spent on the best shocks, bearings and motors, without seriously altering critical components such as the chassis, suspension and gearbox, you could reach only nominal levels of performance.

To eliminate the need for racers to spend vast sums to buy a race-ready machine and convert it into a monster truck, Team Losi* mated its famous (or infamous, depending on which side of the competition you're on!) JR-X2 off-road buggy with its own race-proven monster-truck parts. Losi created what might be the most state-of-the-art competition monster truck available!

The JR-XT is the brainchild of Losi driver Jack Johnson, who put a truck body on his Nationals-winning JR-X2 just a few weeks before the Losi car was released to the public (in late '88). According to Johnson, he did it "just for the hell of it!"

TEAM LOSI

JR-XT

Type Racing monster truck
Scale 1/10
Sug. Retail Price \$339.95

DIMENSIONS:

Overall Length 17 inches
Width 12 inches
Height 7.875 inches
Wheelbase 11.125 inches
Track (f/r) 9.75 inches

WEIGHT:

Gross (w/bat.) 4 pounds, 6 ounces

BODY:

Type Toyota pickup
Material Polycarbonate

CHASSIS:

Type Pan
Material Graphite

DRIVE TRAIN:

Primary Pinion/spur
Transmission Gear drive
Differential Ball
Bearings Ball bearings

SUSPENSION:

Front: Type Lower A-arm, upper
control link
Dampening Oil-filled, coil-
over shocks
Rear: Type Five-link
Dampening Oil-filled, coil-
over shocks

WHEELS:

Type (f/r) 3-piece plastic
Dimensions (DxW) (f/r) 2.44x2
inches

TIRES:

Front Rubber monster-truck rib
Rear Rubber monster-truck spike

ELECTRICS:

Motor 05/540*
Battery 6- or 7-cell*
Speed Controller Electronic*

OPTIONS AS TESTED:

Team Losi MTM motor; Airtronics XL 2P radio with steering servo; Novak T-4 speed controller and NER-2X receiver.

COMMENTS:

The JR-XT is smooth, fast and very predictable on the track, and the five-link rear end tends to glide over the rough stuff. The excellent tuning tips are an invaluable aid in setting up the truck.

* not included

Having built one of the early JR-X2s (see *Car Action's* April '89 issue), I already knew how race-ready the design was. After suffering through an entire racing season of getting the doors blown off my previous truck by JR-X2 conversions, I had a notion of just how good this hot little number was. Even though I was at many of the same races throughout the year and virtually watched the Losi drivers develop this truck, I was still amazed at the quality of the finished product. This truck is awesome!

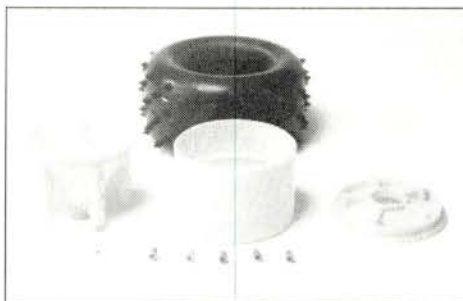
The RC10 truck with which I campaigned in the '89 NORRCA Off-Road Series (and placed 5th overall) was great. I had modified it extensively for over a year with all the latest after-market performance parts, spending lots of money just to keep up with the competition. With the JR-XT, searching for the best hop-up parts isn't necessary—it all comes in one box! A

ranged in bags marked A through D. Self-adhesive window masks are a welcome item.

The box contains one complete JR-XT race-ready, rolling chassis minus motor and electronics. According to Losi sources, the latter items were left out to minimize the cost to consumers. Besides, according to Losi logic, racers have a wide variety of preferences for motors, radios and speed controls.

Also included is an owner's guide and a full sheet of decals, which includes a full front grill with headlights, etc., so you don't have to go through the trouble of painting on a grill to finish the body (as I did). Losi has included all the Allen wrenches necessary to complete assembly, but you'll need a Phillips screwdriver, pliers, a hobby knife, etc.

To operate the JR-XT,



Three-piece wheels are standard on the JR-XT. Although they're supposed to eliminate the need to glue on the tires, most racers use CA on the rear wheels.

graphite (long) chassis; full ball-raced, low-rotating-mass transmission with 48-pitch gears; wide front arms; genuine rubber tires; and custom three-piece wheels are just some of this kit's features.

DIGGING UP MONSTER PARTS

The kit is compactly packed, the body is neatly protected with tissue paper, and the chassis components are ar-

you'll need a motor, a radio system, a speed control and a 6- or 7-cell battery pack (depending on whether you run an open or stock motor).

MAKING THE MONSTER

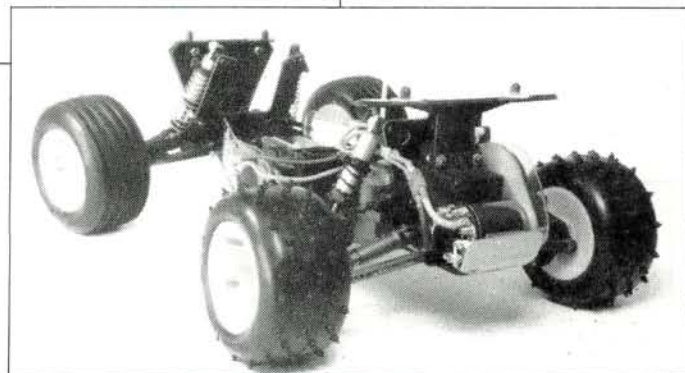
Let's face it—you're simply building a JR-X2 with a built-in conversion kit! Most of the instructions are basic JR-X2, and construction is straightforward (see *Car Action's*

JR-XT

JR-XT



Left: Team Losi based the JR-XT on its National Champion JR-X2 off-road car. The chassis is longer, as are the front shocks and shock tower. Below: The JR-XT comes with durable body mounts and a smooth, efficient JR-X2 tranny. Bottom: The kit includes polycarbonate guards to keep dirt and debris out of the chassis. The author made the speed-control shelf (see diagram).



April '89 issue). Since the first kits came out, many hard-to-see improvements in structural design and materials have been incorporated into the present generation of Losi cars. One of the most notable is the differential, which has a stronger thrust washer and beefier Belleville washers.

Heads up when it comes to the shocks, as there are two

types of spring in the kit—progressive and single-rate. The black ones are progressive and go on the rear; the silver ones are fixed-rate for the front. Before you assemble the truck, read the tuning tips from Gil Losi Jr. and his teammate Jack Johnson in the back of the owner's manual. To begin, use wire cutters or a hobby knife to remove all

SPEED-CONTROL SHELF

Figure 1: Cut out the pattern along the solid line and mark the screw holes. Bend part A straight up, parts B straight down and parts C toward each other. Before drilling, make sure the hole marks line up with the shock-tower/bulkhead-mounting screw holes.

Figure 2: The finished speed-control shelf.

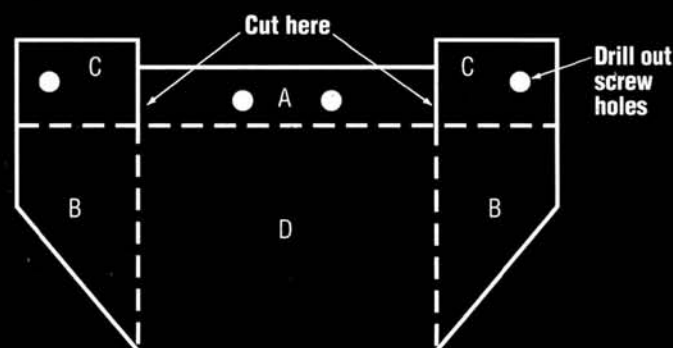


Figure 1

spurs and flash from the plastic parts. With some of them, fit is critical.

The three-piece wheels for this truck are novel and consist of a wheel ring and two bead flanges (inside and out). With the ring in place inside the tire, the outside bead flange is pushed into the tire, and the tire bead is pulled onto the flange. The idea is to allow you to trap the tire beads on the rims so that gluing isn't necessary. That's right—they're reusable!

Be sure to seat the tire beads carefully on the rims before you crank down the five small 4-40 screws, or you'll wind up with lumpy sidewalls. The screw holes on the inside flange can't be seen from the outside when you're installing the screws in the

tire, so Losi molded a small mark on the inside of both front wheel hubs so you can line them up with marks on the inside bead flange.

This helps you to line up the screw holes, but when I installed the wheels on the front axles and spun them, they made a strange clicking sound. An investigation revealed that the tiny alignment marks on the hubs were rubbing against the spindle carriers. This was easily remedied by simply slicing off the marks with a hobby knife. (Losi is sensitive to customer feedback, and factory sources say that this problem has already been addressed.)

I had some trouble getting the rubber to fit properly, and I had to disassemble and re-

(Continued on page 138)

BULLET RC-X2

(Continued from page 91)

The RC-X2 owes its great stability to a combination of factors. It has a long wheelbase—11.375 inches, compared to the RC10's 10.5 inches and the JR-X2's 10.75 inches—and it's slightly wider than either of those cars. Chassis "adjustability" is another major factor, and the Robinson 18-degree steering blocks contribute to the car's extremely straight tracking.

The RC-X2's speed can be attributed to the Losi transmission, its lightness (52 ounces with body and battery) and its stability on the straightaways. The fewer steering corrections you have to make as the car goes down a straight, the less the diff has to work, and the more power goes directly to the wheels.

The first time I raced the car, I won one of the two qualifying heats (I came in 2nd in the other), qualified 2nd and placed 2nd in the A-Main—not too shabby for a car with which I hadn't practiced, and on a track I'd driven only a few times. This conversion kit lives up to its potential—it goes *bullet-straight* to the finish line!

*Here are the addresses of the companies mentioned in this article:

Associated Electronics, 3585 Cadillac Ave., Costa Mesa, CA 92626.

Team Losi, 1655 East Mission Blvd., Pomona, CA 91766.

Bullet Racing Products, 14435 Tom Ball Pkwy., Houston, TX 77086.

Andy's R/C Products, 466 W. Arrow Hwy., Unit K, San Dimas, CA 91773.

Robinson Racing Products, 165 N. Malena Dr., Orange, CA 92669.

Du-Bro Products, 480 Bonner Rd., Wauconda, IL 60084.

A&L Manufacturing, 1490 W. Rincon #J, Corona, CA 91720.

Novak Electronics, 128-C East Dyer Rd., Santa Ana, CA 92707.

Futaba Corp., 4 Studebaker, Irvine, CA 92718.

Reedy Modifieds, 3585 Cadillac Ave., Costa Mesa, CA 92626. ■

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KYOSHO GAS RACE

(Continued from page 51)

The fastest during qualifying were Christy (who made up for his 2nd place in the off-road by setting the TQ pace), Johnson, Bartos, Potter and Link—the

surprise A-Main qualifier. Link had been plagued by stalling problems on Saturday, and it looked as though he hadn't a hope! Just before the qualifiers, Burnette helped him tune his engine, and this got his car running like a champ. By the end of qualifying, Link was able to put in enough laps

to lock a spot in the A-Main.

• **C- and D-Main Combo.** Taking the 1st spot in the six-car C-Main was Steve Ozuna, who had done so well in the off-road race, but had been hurt by some minor breakage during qualifying. Bo

(Continued on page 106)

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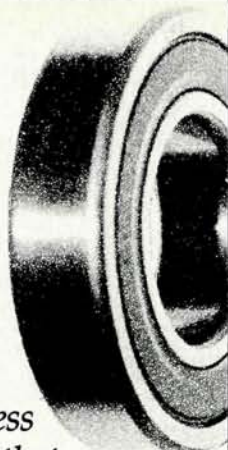
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KYOSHO GAS RACE

(Continued from page 104)

Perkle took the 2nd spot, followed by Jim Hoffman in 3rd. The 4th spot went to Romie Lucas and the 5th, to my friend and pitman, Bill Koliopoulos, who drove for me while I took pictures. He ran well until the glow plug vibrated right out of the engine! Sandy Hunt finished 6th.

● **B-Main.** This included one of the week-end's best races. Bill Jeric jumped to a commanding lead, and it looked as though he'd run away with it, but after 20 minutes, his shock broke, and his outside front tire was paper-thin.

Running strongly in 2nd, Scott Parks was about seven laps out of the lead when Jeric decided to come in for a tire change. He lost about three laps in the pits, but was still four laps ahead on his return to the track. Then, with about 2 minutes left in the race, the glue holding on his new front tire let go, and, knowing that another pit stop would cost him the lead, he had to nurse his crippled car around the track for the final minutes, while hoping that Parks wouldn't reel him in by the buzzer.

He did manage to coax his war-torn buggy across the line in 1st, but another

(Continued on page 109)

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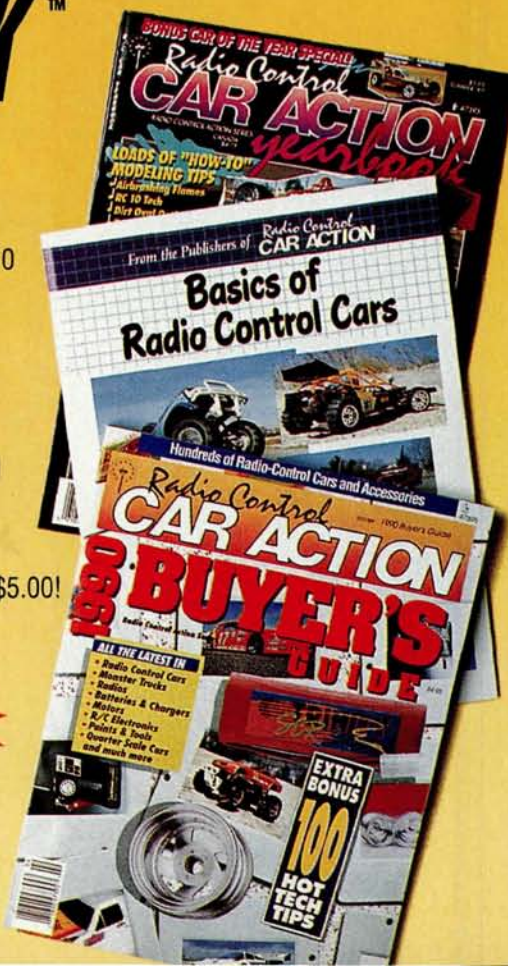
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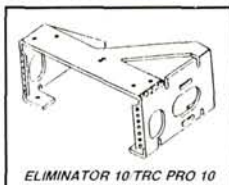
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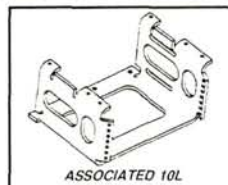
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KYOSHO GAS RACE

(Continued from page 106)

minute would have given Parks the win. Kyosho's John Palmer managed a 3rd-place finish, and he was followed by Brian Knight and Mike Burnette, who had been attacked by gremlins all day. (But Mike did make good on his promise to match the day's fastest lap time.)

• **A-Main.** This looked as though it would be another runaway victory, but in 30 minutes of racing, anything is possible.

The starting lineup had Carl Christy at the head of the pack on the inside front with Joel Johnson just to his right in the second spot. Bud Bartos claimed the third spot, and Kim Potter and Anthony Link filled the final two spots.

At the horn, the pack got off to a clean

start, with Christy, Johnson and Bartos all together. Christy held a tight line and ran very strongly, but a few taps on the inside barrier quickly slowed him to 3rd. Johnson and Bartos duelled for the lead, but Bartos managed to inch his way ahead. Just when it looked as though his car troubles were over, Bartos went in for the first of four fuel stops, and the engine

(Continued on page 112)

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KYOSHO GAS RACE

(Continued from page 109)

flamed out. Before he could get started again, Johnson and Christy had put him two laps down.

By the halfway mark, Johnson had stretched his lead out to almost nine laps and seemed a certain winner. Gremlins again! The bolts holding on his exhaust header worked their way out, and the header fell off the engine. He was allowed to stay on the track, but running without a pipe often results in a burned piston. He didn't lose much speed, but he couldn't be too hard on his engine, or he wouldn't finish the race.

With 5 minutes left in the race, Bartos came in for his last pit and flamed out again. Once out of the pits, he was within three laps of Johnson and was closing the gap with a real chance that he could catch him for the lead. Then, running a really tight line in the turns caught him on the boards and he turned over. Bartos held his position, but he hadn't a chance of taking the lead unless Johnson's motor went up in smoke. Johnson coasted to an easy victory followed by Bartos, Christy, Potter and Link.

(Continued on page 114)

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KYOSHO GAS RACE

(Continued from page 112)

Shortly after the finish of the A-Main, trophies were awarded to the winners based on the combined results of both races. The rest of us were given a plaque by Kyosho as thanks for taking part in their first race.

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This event is now one of the priorities on my racing schedule. The people from Kyosho and ARCAR South did a tremendous job of running the races, and there were plenty of parts and supplies on hand to keep you on the track.

Kyosho has three other races planned for this year (no dates or locations yet, but we'll keep you posted), tentatively including an exhibition race during the Trinity

(Continued on page 119)

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KYOSHO GAS RACE

(Continued from page 114)

Speedworks Sportsman's Cup in Detroit, MI, during the first weekend in July. If you're out there with an 1/8-scale, off-road car and don't know where to race it, stayed tuned. One of these races could be in *your* area soon! ■

GP MARINE STINGER

(Continued from page 57)

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(Continued on page 124)

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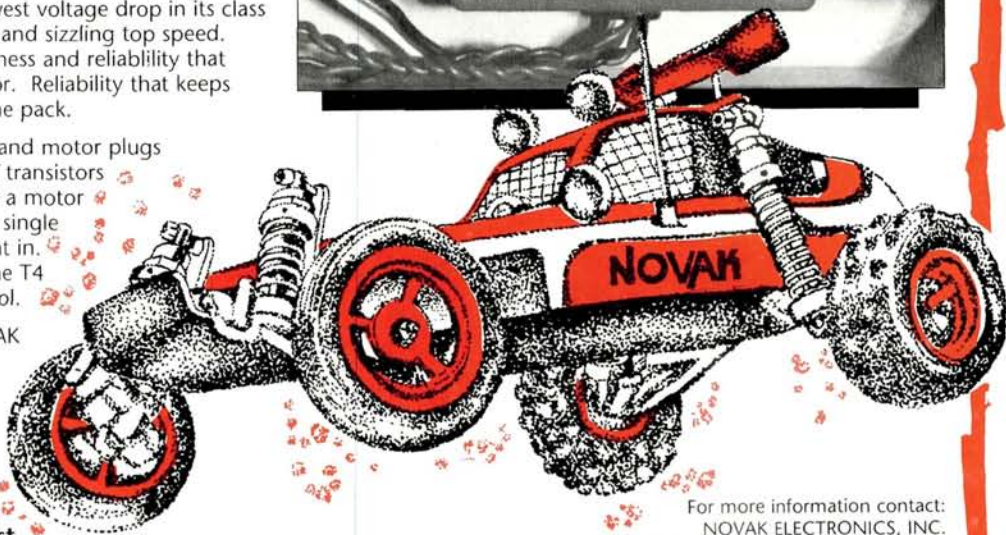
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ROAR TRUCK NATIONALS



BRAGGIN' RIGHTS FOR THE BADDEST TRUCK IN TOWN

by RICK HOULE

IF YOU HAVE any doubts that R/C truck racing is a full-blown U.S. craze, forget them! You only had to be at the R/C Motorsports racetrack in Las Vegas, NV, on the first weekend in March to see how popular it has become. For the first ROAR Truck Nationals, more than 230 entrants competed in four classes:

- 2WD Ultra Stock
- 2WD Modified
- 4WD Ultra Stock
- 4WD Modified

A local cab driver was surprised that so many people would go to Las Vegas to do something other than gamble, but if you weren't there to race, you were missing a great opportunity to stand tall and be counted among the nation's top R/C truck drivers. A surprisingly large number of "privateer" drivers showed up, and there were some real surprises in the list of names for the A-Mains.

THE TRUCK TRACK

Located in an industrial building just a few blocks away from the famed "strip," the R/C Motorsports facility was ideal. It presented drivers with some interesting challenges—in particular, the off-camber sweeper at the end of the 90-foot straightaway. For drivers, the off-camber was out of sight, and it tested their skills to the max.

The huge, central "Mount Fuji" jump (aptly named by a Team Losi driver!) wasn't too intimidating as long as your approach was "clean," but get a little sideways going over the top, and things became scary.

During the week before the race, R/C Motorsports' regular schedule was disrupted, as every day was devoted to practicing for the ROAR event. This gave out-of-state drivers ample time to dial-in their cars to a course that had only been laid out on the previous Sunday.

Some claimed that Team Losi's Kyle Reed would enjoy an unfair advantage because his dad owns the track, but, in fact, Kyle hates Vegas and spends very little time there. He didn't even *see* this new layout until the Thursday before Qualifying began.

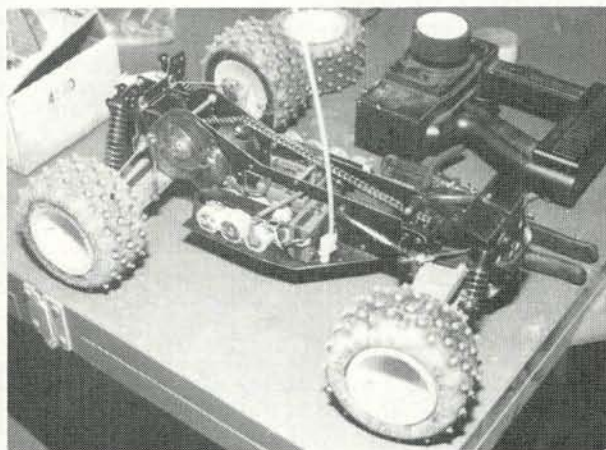
TRICK TRUCKS

Unfortunately, there was no Concours judging, and this was a shame, because many rigs were beautifully finished. Jack Leighan from Washington brought one of the most impressive JR-XTs I've ever seen. Sporting a handmade, aluminum chassis (complete with shock towers, bulkheads, suspension arms, etc) that was polished to a mirror-like finish, this breathtaking truck truly had to be seen to be appreciated. If my camera gear and film hadn't been stolen, you would have seen photos of it!

LET'S ROAR!

The racing format called for one round of qualifying on Friday and three rounds on Saturday. Sunday was devoted to the Mains. Running just one round on Friday seemed to work well; it gave drivers plenty of time to dial-in their trucks—all night, if necessary—before running the remaining rounds. Under the watchful eye of ROAR's President, Eric Gudger, the three-day event went smoothly.

● **4WD Ultra-Stock A-Main.** With only 12 entrants, this class was the smallest, and the top 10 squared off on Sunday. The insidious TQ demon was obviously alive and well, and all four Top Qualifiers fell victim.



The winning truck of Race Prep's Mike Dunn led a 1-2-3 Pro Radiant sweep in the 4WD Modified Class. Plans are under way for a conversion kit.

Doug Fichuk was the TQ (15/4:04.44) with his Schumacher 4WD. Sponsored by Schumacher and Lightspeed, he was one of the few drivers at this event who had also attended the IFMAR World's. Tom Clark took the holeshot in the A-Main with Fichuk close behind—both narrowly avoiding the massive pileup for 3rd place!

Fichuk stole past Clark into the lead, but they tangled when Clark landed right on top of the leader. At that point, they were quickly joined by young Ryan Reed and J.B. Hunt. Michael Chellson held the runner-up spot briefly before Reed passed him while Clark was trying to put as much distance between him and the pack as he could!

As Clark's Pro Radiant was picking its

way through back-marker traffic (with Reed's Radiant hunting him down), the battle for 3rd was still hot 'n' heavy. Hunt broke away from Fichuk, caught up with Reed, but then tangled with him. Fichuk bumped into the pair, and all three went "neck-and-neck" down the straightaway at full speed toward the off-camber sweeper! Hunt made it around the turn first and this put him into 2nd place. Reed and Hunt banged doors for a few laps until they entered back-marker traffic, and Reed managed to pull into 2nd and then slowly pulled away from Hunt.

With 15 seconds left in the race, you can imagine 3rd-place Hunt's surprise when he noticed the leader, Clark, right on his rear! At the wire, it was Clark, with Reed in 2nd and Gene Mason's Yokomo YZ-10 in 3rd.

The youngest driver? "Privateer," Jason Ashton was the youngest I've ever seen compete at any national event. This eight-year-old is a local at R/C Motorsports, and he did a great job at the Truck Nats.

● **2WD Ultra-Stock A-Main.** This was the most popular class—103 entrants! Losi driver Jon Anderson TQ'd with a time of 16/4:13.08. Though no driver in 4WD Stock broke the 16-lap barrier, four Team Losi drivers qualified with 16 laps in 2WD Stock! With the notable exception of Richard Jamieson's JG/JR-X2 and

Scott Montgomery's Pro-Line/RC10, every truck in the A-Main was a JR-XT.

At the start of the Main, Kyle Reed grabbed the holeshot and avoided the first-turn pileup, but Jack Johnson was hot on his tail. (Watching these two banging doors, you'd never have thought that they were members of the *same* team!)

Johnson tagged Reed from the rear, spinning the leader around as he took over the point position. Reed got hung up in a turn, and TQ Anderson stole past into 2nd, but only just before the TQ demon claimed his next victim. After only four laps, something went south in Anderson's truck, and he was out of the picture.

Reed regained the 2nd spot just as Losi's Scott Brown charged among the leaders to join the fun. At that point, it became a four-truck contest for 2nd—Anderson, Reed, Brown and Jamieson. All four trucks were caught in a major Lexan-trading party in turn one and, this time, it was Brown who broke away into 2nd! Where was Jack Johnson at this point? Well, I'll just say that he was so far ahead of the pack that no one was even paying attention to him anymore, because there was so much action going on for 2nd.



4WD ULTRA STOCK

FIN	QUAL	NAME	CHASSIS	MOTOR	ESC	BATTERIES	BODY	TIRES (l/r)
1	2	Tom Clark	Pro Radiant	R	Novak T1X	Race Prep TNT SCR	Andy's Chevy	Losi
2	6	Ryan Reed	Pro Radiant	A H	Novak T1X	Sanyo SCR	JR-XT	Losi
3	4	Gene Mason	YZ-10	C A	Novak T1X	Sanyo SCE	JR-XT	Losi
4	1	Doug Fichuk	Cat	E N	Tekin 600	Sanyo SCR	Andy's Chevy	Losi
5	3	J.B. Hunt	YZ-10	D	Novak T1X	Revtech Pushed SCE	McAllister Toyota	Pro-Line RED
6	5	Michael Chellson	Optima Mid	P O	Tekin 190	Sanyo SCR	Associated Ford F-150	Losi
7	9	John Gudvangen Jr.	JG/YZ-10	R U	Novak T1X	Twister SCE	JG Ford F-150	JG
8	10	Jason Ashton	Optima Mid	E T	Tekin 300	Trinity SCR	JR-XT	Losi
9	8	Jack Leighan	Turbo Optima Mid	P	Novak T4	Sanyo SCR	Proline Chevy	Losi
10	7	David Potter	Pro Radiant		Novak T1	Tech Products SCR	Andy's Chevy	Losi

2WD ULTRA STOCK

FIN	QUAL	NAME	CHASSIS	MOTOR	ESC	BATTERIES	BODY	TIRES (l/r)
1	2	Jack Johnson	JR-XT	R	Tekin 700	Losi Prime Time SCR	Stock	Losi
2	4	Scott Brown	JR-XT	A H	Tekin 600	Sanyo SCR	Stock	Losi
3	3	Kyle Reed	JR-XT	C A	Tekin 600	Losi Prime Time SCR	Stock	Losi
4	5	Richard Jamieson	JG/JR-X2	E N	Tekin 600	Sanyo SCR	Andy's Chevy	Losi/Pro-Line RED
5	10	Gary Kyes	JR-XT	D	Tekin 700	Prime Time SCR	Stock	Losi
6	6	Scott Way	JR-XT	P O	Tekin 600	Jeff Pack	Stock	Losi
7	7	Sean Kersten	JR-XT	R U	Novak T1X	Sanyo SCR	Andy's Chevy	Losi
8	9	Brian Peterson	JR-XT	E T	Novak T4	Sanyo SCR	Andy's Chevy	Losi
9	8	Shane Porter	JR-XT	P	Tekin 600	Jeff Pack	Stock	Losi
10	1	Jon Anderson	JR-XT		Novak 4	Twister SCE	Stock	Losi

On everyone's white-flag lap, Johnson held a commanding lead while Brown sat uncontested in 2nd, and it was a battle to the wire for 3rd between Jamieson and Reed! When the dust had settled, Johnson claimed the victory, Brown was 2nd and Reed took 3rd.

● **4WD Modified A-Main.** Only three drivers broke the 16-lap barrier in this class, and Kyle Reed was the TQ (16/4:05.21). He drove a Kyosho Lazer that sported a JR-XT body and had been converted into a truck by his father, Warren.

At the first turn, it was pileup time!—almost the entire field! Race Prep's Steve Dunn broke into the lead with Dominic Leconte and Doug Fichuk in tow. Leconte and Fichuk couldn't hold out for long, however, as Greg Dee and Dunn's brother, Mike, moved past them both. Steve Dunn tagged a wall, and Mike shot past him into the lead!



Gil "Pops" Losi Sr. proudly displays his personal JR-XT, but he left the racing glory to his team drivers.

Reed was in 3rd and flying when he tagged the wall under the AMB scoring bridge and sheared the left front wheel off his truck! At this point, a driver who could be referred to as "rookie of the year"—privateer Steve Ozuna—was in 3rd. (Ozuna has only been racing a year, but he has already shown that he might become a major force.) As the Dunn brothers continued their lead, teammate Tom Clark passed Ozuna, and this put three AYK Pro Radiants into 1st, 2nd and 3rd positions! It wasn't a cakewalk for Clark, however, as the stubborn Ozuna traded places with him a few more times during the race.

The three Race Prep drivers put on a great show as they battled fiercely for the lead. With Mike Dunn comfortably in the lead, it was a drag race to the wire for Clark as he tried to hold onto the runner-up spot while Steve Dunn climbed all over him! At the finish it was Mike Dunn in 1st, followed by his brother Steve (2nd) and Tom Clark (3rd).

● **2WD Modified A-Main.** Two drivers managed to break the 16-lap barrier, and Jack Johnson posted 16/4:11.46 for the pole position. Johnson made his TQ run with a 12-turn "Motown Missile," but all that raw horsepower was a real handful, and he swore he wouldn't use it in the Main. At the start, he grabbed the holeshot, but teammate Kyle Reed had other plans and quickly went past him.

With his JR-XT, Gary Kyes is making

an awesome comeback to racing. Starting from the 7th spot on the grid, he reached 3rd early on! Knowing how bloodthirsty his own teammate Johnson can be while racing, Reed tried to pull away, but Johnson hung on as if attached to the leader's spoiler. As the two leaders pulled away from Kyes, Richard Jamieson pulled in behind and threatened to pass Reed.



Driven by Scott Montgomery, this prototype Pro-Line conversion kit was the only RC10 that made the A-Main in the 2WD classes. He finished 8th.

Jamieson managed to pass Kyes once, but then he tagged a wall and Kyes passed him!

Jon Anderson's truck came to a complete stop once again—just as it had done in 2WD Ultra Stock. Mike Dunn was next in line to challenge Kyes for 3rd, but there just wasn't enough time—or batteries—left. When the smoke had cleared, Reed was the victor, Johnson had earned 2nd and Keyes was in 3rd.

Is truck racing here to stay? ROAR certainly seems to think so. I wonder if trucks will ever be included at the Worlds? Hmmm, could be interesting. ■

4WD MODIFIED

FIN	QUAL	NAME	CHASSIS	MOTOR	ESC	BATTERIES	BODY	TIRES (l/r)
1	2	Mike Dunn	Pro Radiant	Race Prep 16S	Novak T1X	Race Prep TNT SCE	Andy's Chevy	Losi
2	4	Steve Dunn	Pro Radiant	Race Prep 16S	Novak T1X	Race Prep TNT SCE	Andy's Chevy	Losi
3	3	Tom Clark	Pro Radiant	Race Prep 17S	Novak T1X	Race Prep TNT SCR	Andy's Chevy	Losi
4	5	Steve Ozuna	Lazer ZX	Peak Perf. 17D	Novak T1	Twister SCE	JR-XT	Tamiya
5	8	Greg Dee	Lazer ZX	Twister 17T	Tekin 600	Twister SCE	Andy's Chevy	Losi
6	9	Dominic LeConte	C-4	CAM 17Q	Novak T1	CAM SCE	Pro-Line Nissan	Losi
7	7	Doug Fichuk	Cat	Lightspeed 14S	Tekin 600	Sanyo SCE	Andy's Chevy	Losi
8	1	Kyle Reed	Lazer ZX	Revolution 14Q	Tekin 600	Prime Time SCE	JR-XT	Losi
9	6	J.B. Hunt	YZ-10	Revtech 14D	Novak T1X	Revtech Pushed SCE	McAllister Toyota	Pro-Line RED
10	10	John Gudvangen Jr.	JG Stadium Truck	Twister 17T	Novak T1X	Twister SCE	JG Ford F-150	JG

2WD MODIFIED

FIN	QUAL	NAME	CHASSIS	MOTOR	ESC	BATTERIES	BODY	TIRES (l/r)
1	2	Kyle Reed	JR-XT	Revolution 17D	Tekin 600	Losi Prime Time SCR	Stock	Losi
2	1	Jack Johnson	JR-XT	Revolution 17D	Tekin 700	Losi Prime Time SCR	Stock	Losi
3	7	Gary Kyes	JR-XT	Revolution 17D	Tekin 700	Prime Time SCR	Stock	Losi
4	8	Mike Dunn	JR-XT	Race Prep 16D	Novak T1	Race Prep TNT SCE	Stock	Losi
5	6	Billy Bradford	JR-XT	Redline 17D	Novak T1	Sanyo SCE	JG Ford F-150	Losi
6	4	Scott Brown	JR-XT	Revolution 17D	Tekin 600	Prime Time SCE	Stock	Losi
7	3	Richard Jamieson	JR-XT	Peak Perf. 17D	Tekin 600	Sanyo SCE	Andy's Chevy	Losi/Pro-Line RED
8	10	Scott Montgomery	Pro-Line/RC10	Peak Perf. 17D	Novak T1	Peak Performance SCE	Pro-Line Chevy	Pro-Line RED
9	5	Joe Schmitz	JR-XT	Twister 14T	Novak T1	Twister SCE	Pro-Line Toyota	Pro-Line RED/Losi
10	9	Jon Anderson	JR-XT	Twister 13T	Novak 4	Twister SCE	Stock	Losi

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GP MARINE STINGER

(Continued from page 119)

and glue it into place. Insert the long pushrod through the exit hole and push the L-bend into the rudder horn; then slip the other end into the E-Z connector and secure it with the connector screw.

For the rudder to operate without binding, the line from the rudder horn to the E-Z connector on the servo must be straight. You might have to bend the rod slightly to ensure bind-free operation. The same process is followed for the switch pushrod, with the switch being located on the inside of the radio box. This time, the straight end of the rod comes out of the transom, and the L-bend is inserted into the hole in the switch. This system allows you to turn the boat on and off without opening the hatch.

Next, mount the mechanical speed control on the second servo and connect the motors to the prop shaft. Be sure to use a thread-locking compound on the shaft-connector setscrews, or they might work free. The propeller is installed on the shaft, which gets a liberal coat of petroleum jelly before it's slipped through the brass propeller tube. The petroleum jelly lubricates the shaft and keeps out water. Strips of

(Continued on page 126)

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Adaptor Kit 16.95
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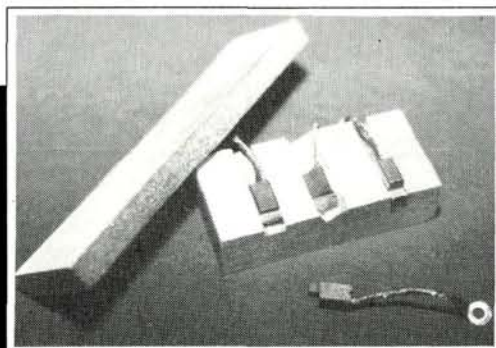
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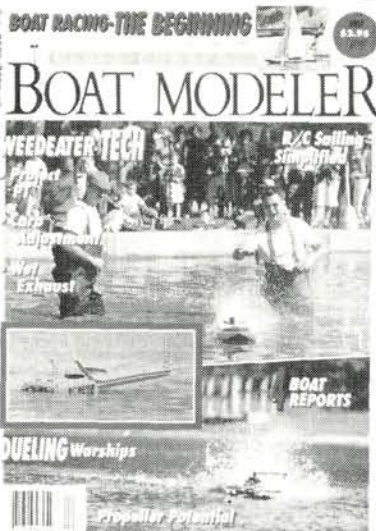
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GP MARINE STINGER

(Continued from page 124)

Velcro hold the battery packs in place within the hull.

The last, and most difficult, step is the installation of the windshield. The instructions simply tell you to tape the windshield in place with masking tape, apply CA along the windshield/deck joint, and allow the glue to dry. You're supposed to hold the windshield while the glue sets. Well, I held the windshield for what seemed like hours, but there was no sign that the glue was working. Frustrated, I decided to see if Editor Rich Uravitch had any glue clues. Rich scuffed the edge of the windshield/deck joint to give the glue a better surface on which to adhere. To make the glue's job a little easier, he bent the windshield using a hair dryer. He also recommended a thicker glue than the one I'd used at home, and this seemed to solve the problem.

HIT THE WATER!

With two 6-cell SCR battery packs charged, I headed to a nearby pond to see if the Stinger would really hum. I gently applied the throttle of my Futaba Magnum

(Continued on page 134)

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A S S O C I A T E D RC10L

S P E E D F F E E D

by WALLY DAVID

THE ASSOCIATED* RC10L had a reputation long before it became available to the public. The prototype's accomplishments were quite impressive: it took the TQ honors at the ROAR Nationals, after which nine more prototypes were built for the rest of Team Associated. The 10L then cleaned up at the ROAR Region 6 Championships, taking TQ in Stock and Modified and winning both classes. Eight 10Ls placed in the Stock Class and seven in the Modified Class. In the car's third race, Kent Clausen set a national speed record of 56.5mph at the RC Thunderdrome (Encino Velodrome, CA).

After a wait that seemed interminable to many, the RC10L was finally released in kit form.

THE KIT: For this review, I received the RC10L Graphite Kit, which has a graphite chassis. The Fiberglass Kit comes with a fiberglass chassis, and both

chassis have five battery slots on each side for saddle-pack configuration.

The front end consists of two nylon suspension arms with a graphite plate between them to increase rigidity. Coil springs on the kingpin absorb bumps in the track, and E-clips hold the wheels on the front axles. Nylon shims are included to add caster, if needed.

The rear suspension uses an offset T-bar that's mounted to the chassis with twin rocker balls. Dampening is provided by an oil-filled, coil-over shock, which many will recognize as an RC10 front shock. The shock is attached to the chassis by a

Great Expectations



combination antenna mount/shock pivot, and is then connected to the top of the graphite rear pod with a ball joint.

The rear pod pivots on the T-bar system, its side-to-side movement controlled by two damper plates, one on each side of the motor pod's upper bracket. The pod is offset so that the motor can be located toward the center of the chassis. The 10L is topped by a graphite axle with aluminum hubs. Two ball

manual, I wasn't disappointed. In the photos, the parts were clearly numbered and arrowed, so I was in no danger of going blind trying to find the right ones!

Assembly starts with chassis preparation. To avoid slicing through the shrink wrap of the cells, use a small file or a Dremel[®] Moto-Tool to round off the rough edges of the battery slots. As an additional precaution, wrap a small amount of electrical tape around the graphite between each slot. Any tear in the shrink wrap could cause a short because graphite can conduct electricity. Also, to prevent the strapping tape from being cut, file the edges of the chassis where the tape will go.



bearings and three thrust bearings provide smooth differential operation.

ASSEMBLY: I've owned an RC10 for two years, and I've built many Associated kits for other people, so I've come to expect a well-organized assembly process spearheaded by a clear, concise manual with well-executed photographs. When I opened this kit's

I made a modification to the chassis that you may want to consider if you go oval racing. While there's much debate about the need to offset the batteries on the inside of the car, I had a more practical reason for running my batteries along my car's left side: all my packs were in stick configuration! There's no way to run the packs across

ASSOCIATED

RC10L

Type On-road
Scale 1/10
Sug. Retail Price \$235

DIMENSIONS:

Overall Length 20 inches
Width 9.25 inches
Height 5 inches
Wheelbase 10.25 inches
Front Track 7 inches
Rear Track 7.25 inches

WEIGHT:

Gross (w/bat.) 44 ounces

BODY:

Type Not included

CHASSIS:

Type Pan
Material Graphite

DRIVE TRAIN:

Primary Pinion/spur
Transmission Direct drive
Differential Ball
Bearings Ball bearings

SUSPENSION:

Front: Type Suspension arms
Dampening Coil spring
Rear: Type T-bar
Dampening Oil-filled, coil-over
shock w/dampener plates

WHEELS:

Front: Type One-piece nylon
Dimensions (DxW) 1.8x1.125
inches
Rear: Type One-piece nylon
Dimensions (DxW) 1.8x2 inches

TIRES:

Front/Rear Foam

ELECTRICS:

Motor 05/540*
Battery 6- or 7-cell*
Speed Controller Electronic*

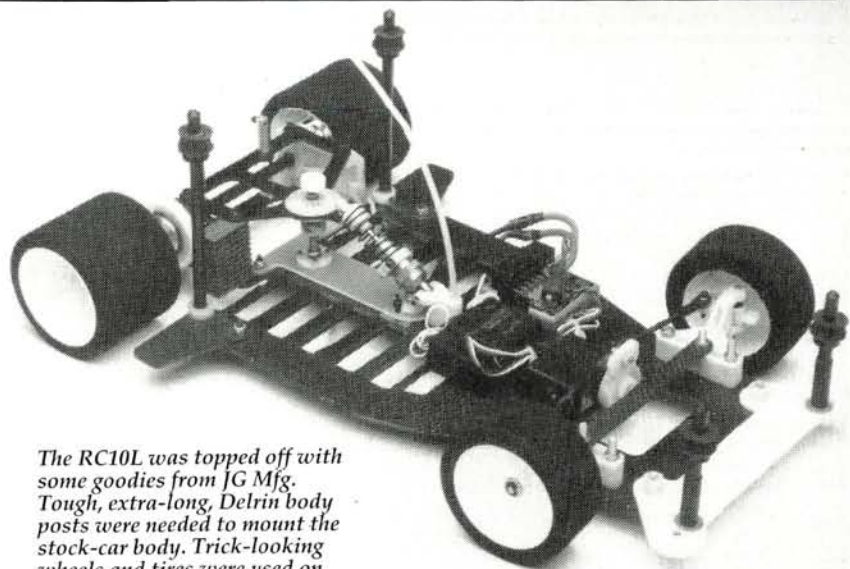
OPTIONS AS TESTED:

Futaba Magnum JR radio; Novak T1X electronic speed controller; Reedy Modified Yellow Dot motor and 6-cell SCE Team pack; Associated Chevy Lumina; Scale Racing Products center-point steering; JG Mfg. foam tires, body posts, and graphite lower pod brace; CKW cap tires.

COMMENTS:

The RC10L worked right off the work table. It can be placed anywhere on the track, and it almost broke the track record on its first time out. The car stays very consistent from track to track, without needing adjustment. I hope the broken T-bars and axle were due to a tough track. Overall, a good value/performance ratio.

* not included



The RC10L was topped off with some goodies from JG Mfg. Tough, extra-long, Delrin body posts were needed to mount the stock-car body. Trick-looking wheels and tires were used on each corner.

the chassis, so I enlarged the small slot for the strapping tape (toward the front of the chassis) to the size of a battery cell. This allowed me to have all six cells on one side of the chassis. I cut a new slot to allow me to tape the batteries into place.

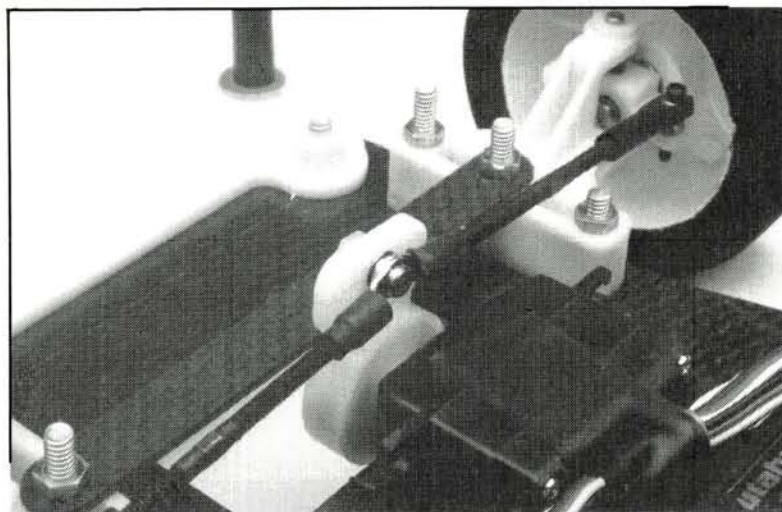
The front end is installed next. You have a choice of two bumpers: the large one is for the wide GTP or Can-Am bodies, and the smaller one is for stock cars.

I was extremely disappointed to find that the 10L uses E-clips to hold the wheels onto the front axles. I've seen E-clips fail too many times to trust a race to them. I substituted Bolink* front ax-

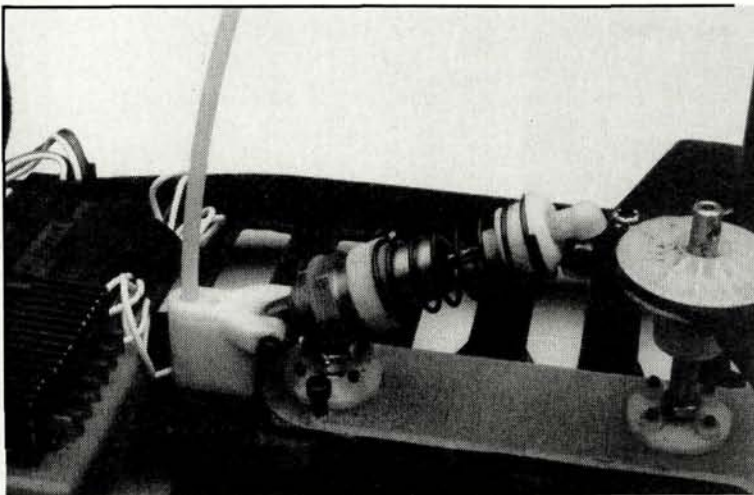
les, which are threaded on the end and use locknuts to keep the wheels on. It's been said that I can "drive the wheels of a car," but I don't want to take this literally.

The front end is finished with tough-looking suspension arms that offer support to the top and bottom of the kingpin. No snapped kingpins on this car! The kingpins didn't need polishing to get a smooth up-and-down movement in conjunction with the small coil springs.

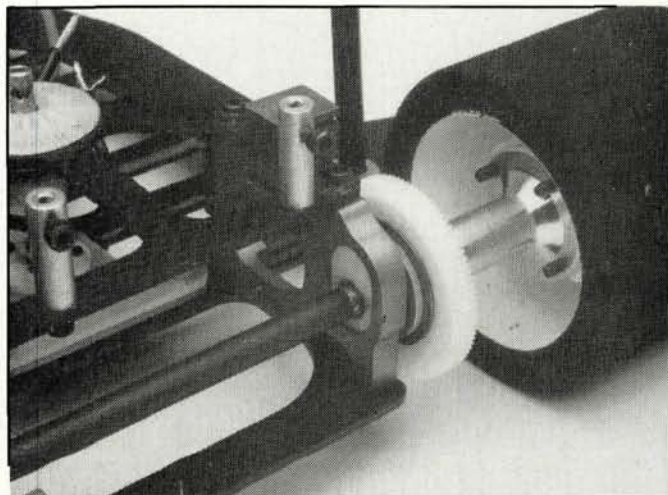
Each suspension arm is mounted to the chassis with three, long, aluminum screws. A nylon spacer goes between the chassis and the arm, along with a 2-degree caster wedge if needed. (Associ-



Beefy, center-point steering replaced the stock linkages. To clear the linkages, the bolts had to be cut. You won't have to do this if the front ride height isn't changed.



The fiberglass T-bar pivots on two rocker balls. Tweak screws, located next to the front rocker ball, are easily accessible.



The Litespeed Litesink, a bolt-on accessory, replaces the stock motor mount. The ride-height adjusters are set to give maximum ground clearance for bumpy tracks.

ated recommends that you start without any caster.)

Construction continues with the rear of the car—the assembly of the T-bar and rocker balls, and their installation on the chassis. There are a couple of things to watch for in these sections:

- Don't overtighten the screws on the rocker balls, or you'll inhibit the T-bar's movement.
- The instructions' "Racers' Tips" recommends that you CA two pieces of brass shim stock where the tweak screws make contact with the chassis. Otherwise, the screws may bore into the chassis, changing the critical tweak setting.
- The aluminum tube that's the pivot point for the T-bar and dampener plates must be securely tightened on the screw that comes up through the chassis and T-bar. Although I used thread-locking

compound, there was no way to tighten the tube without crushing it. I drilled a small hole through the top of the tube and inserted a small Allen wrench. This allowed me to *really* tighten the tube onto the screw and prevent it from vibrating loose.

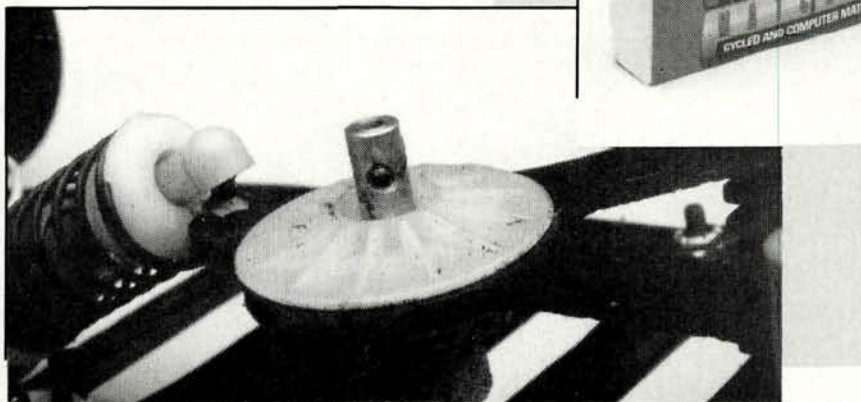
The rear pod goes together quite easily. Although the right-hand motor bulk-

head is aluminum, I wanted to get more cooling for the motor, so I used a Litespeed* Litesink, which is a bolt-on part. The Litesink's big fins become warm during use, helping to dissipate heat more effectively.

Some have reported a problem with the aluminum lower brace, which can bend on bumpy tracks, throw the



A Yellow-Dot modified motor and a 6-cell SCE Team Pack, both from Reedy, powered the RC10L. A Sassy Chassis motor spacer kept the proper distance between the motor pinion and the spur gear.



A hole was drilled so that the post can be tightened more securely. The post had a tendency to vibrate loose before this modification was made.

"tweak" way off and cause alignment problems for the rear axle. To eliminate this, JG Manufacturing* has introduced a graphite lower brace, which definitely won't bend.

Assembly continues with the graphite axle and diff; building and mounting the oil-filled, coil-over shock; and mounting the radio gear. These steps go according to the instructions.

(Continued on page 139)

YOU LIVE TO MAKE IT BETTER...



GP MARINE STINGER

(Continued from page 126)

Jr. and checked the rudder trim. Not knowing what to expect, I pointed the boat toward the center of the pond and punched the throttle. Wow! The boat practically jumped out of the water and took off! I couldn't believe the torque produced by its twin in-line 550s.

The Stinger wasted no time getting its nose out of the water and planing, and it was very stable, even when it crossed its own wake. I guided it through a series of figure-8s, tight ovals, slaloms and long sweeping turns, without seeing any sign that it was going out of control.

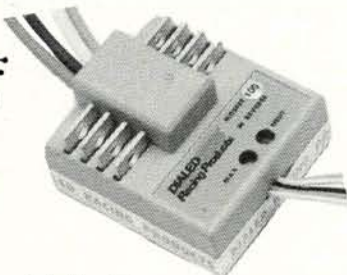
It did break loose when I tried to make sharp right turns, and I was told that this is caused by prop rotation, which pushes the rear of the boat and causes skidding, or "walking." This can be cured by installing the optional (but included) trim plates/skid fins, but fins will slow the boat down. The instructions recommend that you use the fins when using 7-cell packs and when running on rough water. As an R/C car racer, though, I prefer to be a little unstable (the boat, that is, not me!) than to sacrifice speed.

When I brought the boat to shore, I took off the hatch to check for signs of water; the inside was almost bone dry. There was *some* water, but it was only a few drops that sprinkled off the antenna as the hatch was removed. The radio gear stayed dry, owing mostly to the very good hatch-to-hull fit, but if the boat ever sinks, the radio gear will be soaked. (There's no seal around the radio box; in fact, there's a large opening to allow the speed control wires to exit the box.)

Overall, the Stinger went together very easily. The instructions were clear and included good photographs and parts lists. (A list of the necessary parts and hardware appears at the start of each set of steps.) My only real problem was with the installation of the windshield, but with a little patience—and help!—I overcame this. To make things easier, though, I suggest that Great Planes Marine consider including a pre-formed windshield.

As an experienced R/C car racer, but first-time boater, I was impressed by the Stinger's torque and speed. Its handling was very stable and predictable, yet it was nimble and responsive. The warning in the instruction book was absolutely correct: *this is not a toy!*

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*Here are the addresses of the companies mentioned in this article:

Great Planes Marine (Div. of Great Planes Model Mfg. Co.), P.O. Box 788, Urbana, IL 61801.
Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718. ■

KYOSHO SLINGSHOT

(Continued from page 72)

they wouldn't lock onto the axles, but Kyosho's after-market spares fixed the problem quickly. A great improvement would be to spline these drive washers and the axles.

To control the Slingshot, I selected a KO Propo* EX 1 radio system with a ball-bearing servo—an excellent unit with a lot of adjustability. I use a Tekin* ESC 600 PRO XT speed controller, which can easily handle Kyosho's 7-cell battery packs and its 14-turn double Mega motor.

The Bolink* Corvette Devastator body is one of the lowest bodies available, and I chose it because, at the speeds these cars travel, aerodynamics is very important. For this reason, a rear spoiler and a side dam are "standard" options on all cars in this class. The black dots holding things together are pieces of servo tape cut out with the sharpened end of a 1/2-inch copper tube. Adjusting the shape, size and location of the side dam and the spoiler is a vital part of fine-tuning a dirt-oval car.

PERFORMANCE

In the winter, I race my sprint car on a really nice dirt oval at A&D's Fastracks—a large, well-stocked hobby shop in Brewster, NY. On the same night, Eastern Modifieds are also raced, but on Fridays, several classes, plus the 4W modifieds, are on the agenda.

Foam tires or radials are a must on a smooth, hard, clay track. The familiar Kyosho three-piece wheels and the block spike tires provided should work very well on a loose outdoor track, but with a set of CKW* foam tires and one-piece wheels in place and some tuning on the bench, I was ready to try out the Slingshot.

Fast, fast, fast! Because of their traction, 4WD and power, these cars seem to accelerate like rockets. During practice runs, they go past the 2WD cars as if they were standing still, and they power-slide through every turn.

At this track, the record is 43 laps for 2WD and 49 laps for the 4WD mods—

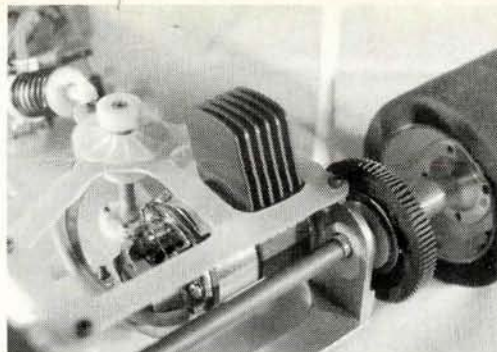
(Continued on page 138)



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SO POWER



KYOSHO SLINGSHOT

(Continued from page 135)

quite a lot for 4 minutes. During a race, the speed dams and air dams create so much wind around the track that small children must be held tightly by their parents. (Well, maybe that's an exaggeration!)

In my first few races, I had the car up to 45 laps in competition. Since I couldn't attend for a few weeks, I turned the Slingshot over to Art Smith (winner of the Sprint Car Class this winter) and Paul Zamperlin (winner of the Eastern Modified Class) to see what they could do. After they had added heavier shock oil and a rear swaybar, reset the suspension angles and locations a few times, and put in some serious practice, they got the Slingshot up to 47 laps.

During the short time I've had the Slingshot, I've found it very fast and very sturdy. It certainly seems to have a ton of potential. So far, the only problems I've had are keeping the belts and belt pulleys clean, and where tiny stones have jammed, I've had to grind out the chassis under both belt pulleys. This is a great car at a great price, and it will help a popular

class to grow even faster! Until next time, have fun racing.

**Here are the addresses of the companies mentioned in this article:*

Kyosho/Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

KO Propo; distributed by Global Hobbies, 10725 Ellis Ave., Fountain Valley, CA 92728.

Tekin Electronics, 970 Calle Negocio, San Clemente, CA 92672.

Bolink R/C Cars, 420 Hosea Rd., Lawrenceville, GA CKW, 1889 Commonwealth, Unit 1, Fullerton, CA 92633. ■

TEAM LOSI JR-XT

(Continued from page 100)

assemble each wheel a few times. I couldn't get the Losi rubber to fit without a slight warp in the sidewalls, but when I later mounted a pair of Tamiya* racing tires on the rear wheels, they fit perfectly. (The inside bead flange also keeps mud from collecting inside the wheels when you race on damp tracks.)

Next, trim the stadium-type Toyota body and use some of the cut-out portions from the wheel wells and tailgate to form number plates and a spoiler. Attach dust

shields to both sides of the chassis with servo tape, and they can be painted or left clear.

Final assembly begins with "G" bag, which contains the adjustable front and rear body mounts. I wanted my truck body to be as low to the chassis as possible, so I mounted the front mount at the lowest limit and cut off the rear mount at the scribe mark just above the second pair of holes.

I attached the steering servo to the graphite chassis with servo tape, and I secured it by drilling small holes on either side of the servo and strapping it down with a nylon zip-tie. Using servo-tape, I attached a Novak* NER-2X receiver with a Stutter Stopper to the chassis, and I mounted a Novak T-4 Speed Control to the rear shock tower by building a small shelf out of scrap Lexan (see diagram). I wanted this monster to fly, so I dropped in a Losi MTM (19-wind monster truck motor) and hooked up an 8.4V, 7-cell battery pack to the charger.

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mission with 48-pitch, self-lubricating gears? How about the fact that the natural rubber tires are monster-truck versions of the JR-X2's? What if I just tell you that this baby hooks up!

The JR-XT is smooth, fast and very predictable on the racetrack, and the five-link rear-end glides over moguls and rough stuff. It weighs just a hair more than my first truck, but it feels better balanced. Initial track settings (as described in the manual) are a good starting point, but you'll have to experiment with shock-oil viscosities. The rear-end felt a little soft, so I'll try a heavier oil. Steering response felt good, with next to no pre-load on the front springs, while the progressive springs on the rear needed a little more pre-load with the 20WT oil.

The JR-XT's radical and race-ready—are you?!

**Here are the addresses of the companies mentioned in this article:*

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

Tamiya/MRC, 200 Carter Dr., P.O. Box 267, Edison, NJ 08818.

Novak Electronics, Inc., 128-C E. Dyer Rd., Santa Ana, CA 92707.

ASSOCIATED RC10L

(Continued from page 131)

For smooth differential operation, I used diff balls and silicone lube from Bud's Racing Products*, and Hyperring diff rings from Hyperdrive*. To lube the diff, I dump the balls into a 35mm film container, squirt in a little silicone lube, close the top and shake the container to coat the balls properly. I then pluck out the slipper diff balls and insert them into the spur.

I use Robinson Racing Products* white, machined, 64-pitch spur gears along with the new machined-steel pinion gears. They're available in a large range of teeth to give an almost infinite number of ratios.

The Hyperrings have a shiny side (for contact with the diff balls) and a rough side, and this precludes the need to glue the rings to the hubs. A Cheetah Racing* diff-centering kit, which has a small plastic spacer with a ridge to fit into the Belleville washer, combines with these products to make a silky-smooth diff, even when it's adjusted tightly!

I wasn't thrilled with the kit's steering links; each side is to use two thin pieces

of piano wire with a locking collar to adjust toe-in and Z-bends at each end. They looked entirely too flimsy. Perhaps the team drivers don't touch the walls, but for the average racer, this setup is inadequate. I chose the center-point steering system from Scale Racing Products*. It has easy-to-adjust turnbuckles with eyelets on the servo ends that join at the center hole of the servo-saver.

Associated does include an awesome, spring-loaded Kimbrough* servo-saver that's the same size as those used on 1/4-scale cars. There's no way this thing will damage the servo, which is held to the chassis with double-sided servo tape.

To round out the RC10L, Associated sent along a painted Chevy Lumina body that's detailed to look just like Darrell Waltrip's Tide machine. I replaced the stock body posts (which are too short for stock-car bodies) with the new, machined Delrin body posts from JG Manufacturing. They're long enough for the high-roofed stock cars and are rock solid, yet flexible, to avoid breaking.

For power, Associated included a 6-cell SCE Team Pack and a Reedy* Yellow Dot modified motor. I used a Sassy Chas-

(Continued on page 140)

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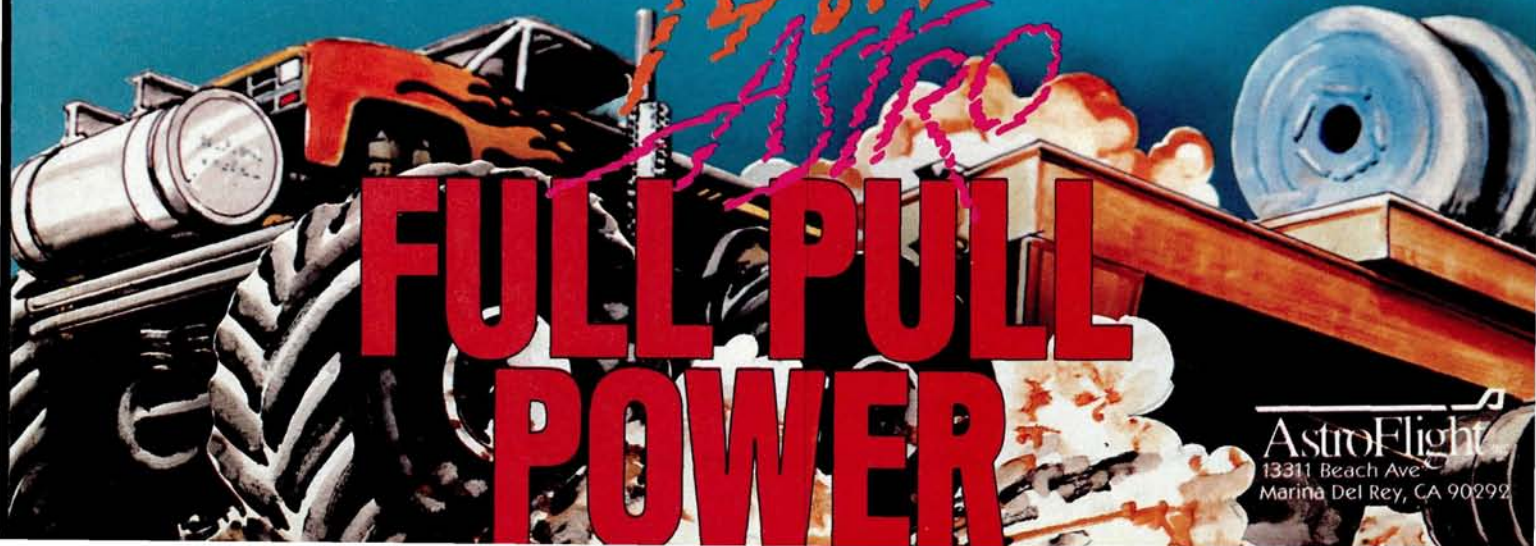
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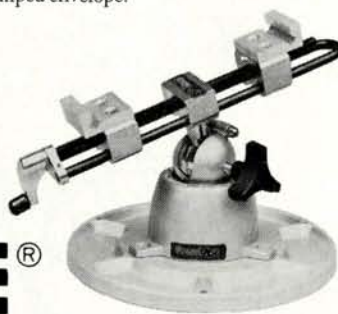
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ASSOCIATED RC10L

(Continued from page 139)

sis* aluminum motor spacer to space the pinion on the motor shaft correctly. A Futaba* Magnum Jr. radio system and a Novak* NESC T1X electronic speed controller are used to guide the RC10L.

PERFORMANCE: The track test for the RC10L consisted of three phases. The initial phase took place at RC Speedworld, which is the unofficial "official" test track for the *Car Action* staff. Located just along Route 7 in Danbury, CT, RC Speedworld is a large, slightly banked, concrete tri-oval, with tight turns offering different degrees of banking and radii.

Right off my kitchen table, the 10L was spot-on. The soft-compound stock tires gave plenty of bite but were worn away after only a few runs. The track's surface was just too abrasive for these gummy tires. I switched to a set of JG Mfg. firm foam tires, which provided ample traction and lasted longer.

Because of some surface bumps, the chassis dragged on the ground in a few spots. To combat this, I removed the spacers under the front-suspension arms, and I installed the axle-height adapter with the bearing toward the chassis. These two changes raised the ride height enough to prevent any further chassis problems. I had to cut the front-suspension screws to allow the front steering rods to have proper movement.

During its first competitions, the 10L was only one section of the track away from beating the track record for most laps.

The second phase of the test took place at *Car Action's* East-West Shootout at the RC Thunderdrome. Without changing the setup, I ran the car there. Following advice from Team Associated's Kent Clausen, to avoid "hopping," I used some Bud's* silicone lube on the dampener plates of the rear suspension. I noticed that although many cars were occasionally thrown off by bumps, my slightly higher setup was very stable. CKW* rubber-cap tires did the trick for traction, and they lasted.

The third, and most frustrating phase, of the test took place at Megatrack in Browns Mills, NJ. I was absolutely "ballistic" on this high-banked concrete tri-oval. Unfortunately, I broke two T-bars in my qualifiers. I think that I may have overtightened the screws that hold the T-bar to the rear pod; this could have caused the failures. Still, I was able to make and

(Continued on page 156)

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ASSOCIATED RC10L

(Continued from page 140)

lead the C-Main at the New Jersey Concrete Oval Championships.

My two-lap lead vanished in one, sickening moment, however, as the graphite axle sheared off at the wheel. I've been told that other 10L owners have also suffered broken axles.

The RC10L is a great car. It handled perfectly, right off the work table. I was able to put it anywhere on the track and still hold a good line. It held up during many weeks of racing at my home track and also to the high speeds of the Thunderdrome. I hope that the car's problems were the result of a tough track, but only time will tell. A titanium axle may be the answer.

I know that this car will get you to the winners' circle, so give it a try.

*Here are the address of the companies mentioned in this article:

Associated Electronics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.

Dremel, 4915 21st St., Racine, WI 53406.

Bolink R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.

Litespeed, P.O. Box 4765, Spokane, WA 99202.

JG Manufacturing, P.O. Box 6014, Whittier, CA 90609.

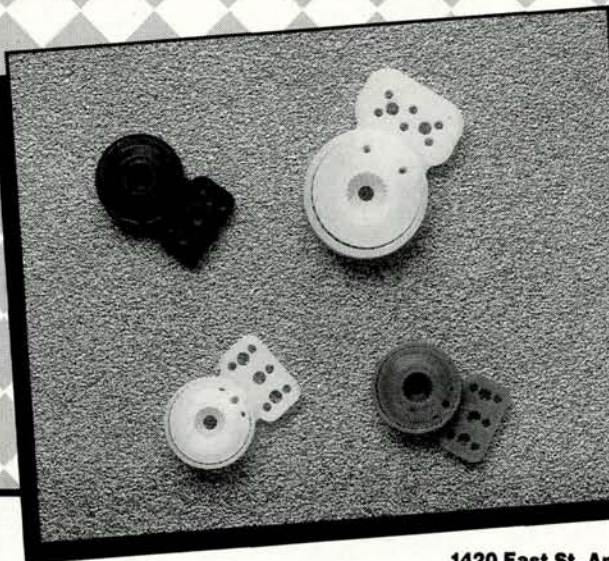
(Continued on page 158)

TO FINISH FIRST, FIRST YOU HAVE TO FINISH!

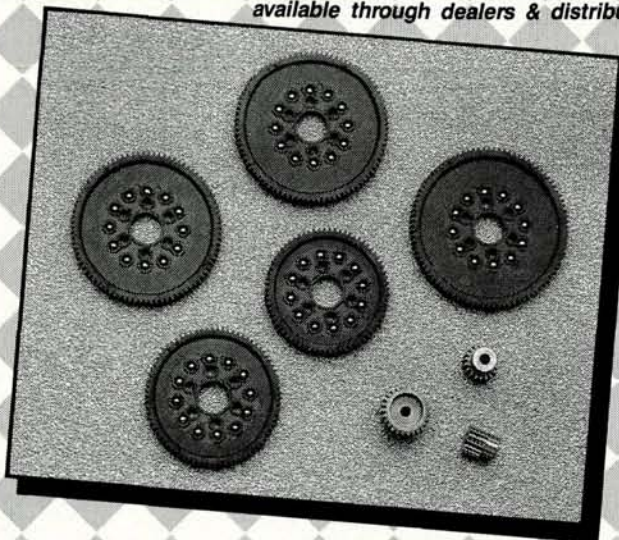
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ASSOCIATED RC10L

(Continued from page 156)

Bud's Racing Products, 52435 Rte. 113, Wakeman, OH 44889.

Hyperdrive Racing Systems, 3210 Howard Nickell Rd., Fayetteville, AR 72703.

Robinson Racing Products, 165 N. Malena Dr., Orange, CA 92669.

Cheetah Racing, 10823 Amestoy Ave., Granada Hills, CA 91344.

Scale Racing Products, 6900 Chadbourne Dr., North Olmstead, OH 44070.

Kimrough Products, 1430 East St., Andrews Place Unit F, Santa Ana, CA 92705.

Reedy; distributed by Associated Electrics.

Sassy Chassis, 204 South Oak St., Itasca, IL 60143.

Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718.

Novak Electronics, Inc., 128-C E. Dyer Rd., Santa Ana, CA 92707.

CKW Manufacturing, 1889 Commonwealth, Unit 1, Fullerton, CA 92633.

LINEAR TURBOCHARGER

(Continued from page 94)

using. Run each pack through a cycle and then label it with the 10-amp discharge rate and the average voltage. The pack with the highest numbers is your best one, so save it for the Mains.

GEARING ADVICE FROM A CHARGER?

Besides being a charger and a cell-matcher, the Linear Turbocharger is also an excellent trackside diagnostic tool that can improve your on-track performance. The feature I like the most is the simple Discharge Mode, which you can use to discharge your battery pack when you come off the track. When discharge is complete, the Turbocharger displays the number of seconds that remained in your pack at a 10-amp discharge rate. This number can help you determine whether you should change your gearing. When you become accustomed to this system, it will be easy to decide if you should go up one, two or more teeth on your pinion or motor pulley. You should avoid over-gearing on your first qualifier; it's much more difficult to determine how many teeth to go down on the pinion after you dump than it is to find out how much juice was left in the batteries.

Although the Linear Turbocharger is designed specifically for SCE batteries, it can still be used for SCRs and SCs. SCRs are such durable cells that they'll hold up to linear charging even though they prefer hard-pulse charging. Before SCRs came along, nearly all chargers were linear, and the SCs worked fine back then.

Competition Electronics Linear Turbocharger is a topnotch charger that offers a

(Continued on page 160)

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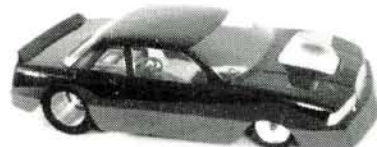
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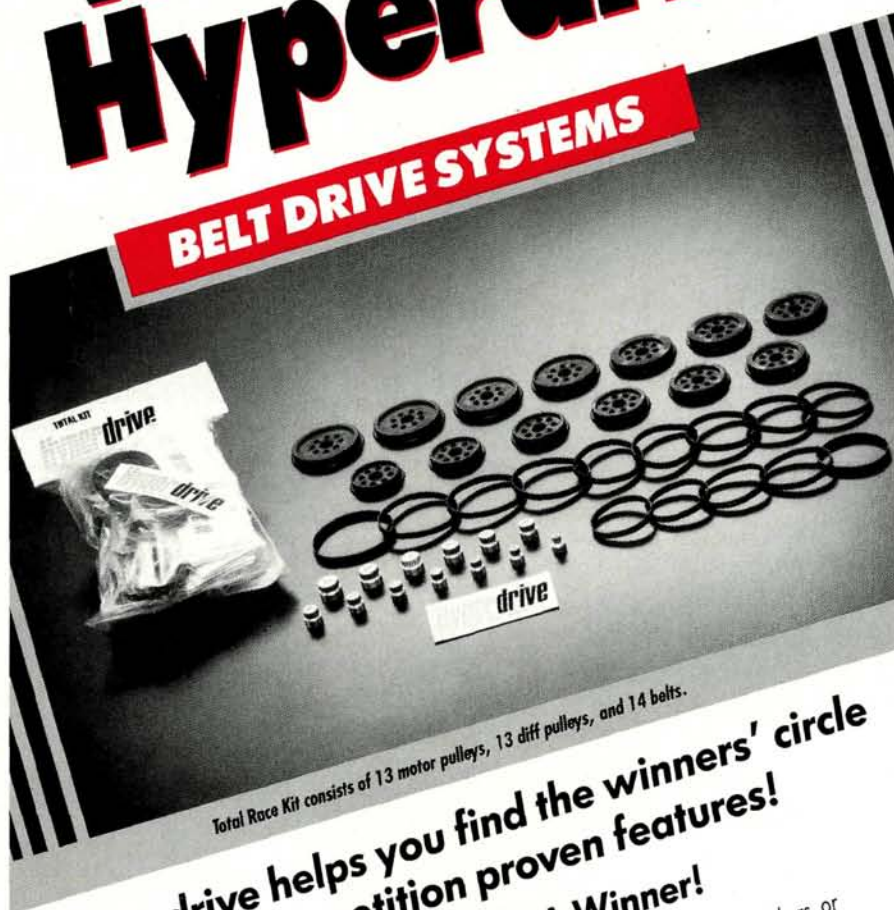
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(Continued from page 158)

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TRACK DIRECTORY

In keeping with our constant efforts to help foster the growth of the radio-control car hobby, we've decided to run this track directory intermittently to inform modelers where they can race and exchange ideas. If you'd like your track listed, send us your name, address, phone number and some information about the track to **R/C Car Action Track Directory**, 251 Danbury Road, Wilton, CT 06897. We'll list as many clubs as space allows.

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(Continued on page 162)

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SPECS: Fits 2.2" Wheel
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DESIGN: Multi Rib with Staggered Bars, Lightweight Natural Rubber Blend.

STOCK NUMBER:

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SPECS: Fits 2.2" Wheel
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STOCK NUMBER:

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(Continued on page 172)

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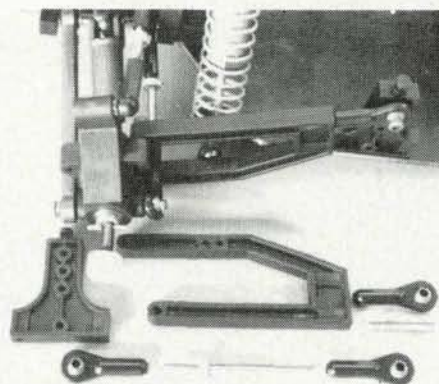
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Make your 10L a lean, mean, quick-change machine

by WALLY DAVID

WHEN YOU PUT together a 1/10-scale on-road car, there doesn't seem to be much you can do to it. Most people like to customize their racers with various after-market performance parts. Off-roaders and monster trucks have scads of goodies with which you can upgrade their major components, e.g., with different transmissions, suspension systems and conversion kits.

For on-road cars, there wasn't much—until now! Cheetah Racing* has come up with a new rear end for the Associated* RC10L. (See my review of the RC10L in this issue.) This new rear pod narrows the rear of the 10L by 3/4 inch.

It also relocates the motor to the center of the car, and this gives the car better balance.

Installing the Cheetah rear end on the 10L isn't at all difficult. First, remove all the radio gear from the chassis. You don't really have to do this, but it lets you clean the chassis, and it makes the conversion easier because you don't have to worry about banging that expensive speed controller on the table while you're working.

BUILDING THE BEAST

Remove the stock rear pod from the chassis. You'll need most of the stock hardware—everything

except the upper and lower pod plates and the T-bar and spacer, so store them. Remove the aluminum post and spacers and toss them out. The Cheetah rear end comes with a beefy, threaded post that won't suffer from the grooves that are worn in the stock post by the dampener plates. It also comes with large, nylon nuts that make dampener adjustments precise and long-lasting.

Take the rocker-ball assemblies off the stock T-bar and attach them to the new T-bar, which has three sets of holes for tweak screws, so the rear end is more adjustable. The Cheetah unit uses

PROJECT 10L

prevent the tweak screws from digging into it. I used Lectraflo from VRP*, which is intended for connecting battery cells, but it's perfect for this purpose. I used VRP's new Lazer CA to attach the Lectraflo to the chassis. (*Editor's note: In addition to hobby use, Lazer CA has proven to be very useful around the Car Action office: I've mended four pairs of shoes and a pair of sunglasses this week! WD*)

slightly thinner fiberglass, so the instructions recommend that you use the middle set of holes to achieve the same T-bar stiffness as with the stock one. Glue two pieces of copper to the chassis to

Bolt the T-bar to the new lower pod plate, then install the new T-bar to the chassis with the flat-head screws. Be sure to use the short screw for the front hole and secure it with the locking nut. Pass the aluminum nut through

the chassis, the T-bar and the rocker-ball assembly, then thread it onto the long, flat-head screw. Put a drop of thread-locking compound onto the screw, then thread the new post onto the screw until the post is tight against the aluminum nut. Install a large, pink, nylon nut onto the new post, and follow this by one of the stock springs and dampener discs.

To help cool the motor, I replaced the stock, right motor plate with a Litespeed* Litesink. Some 10Ls are plagued by weak graphite axles (when mine broke, it cost me a race), so I substituted a T&A* titanium axle for the stock one. The extra weight is worth it, because I know it won't shatter at a key moment. To offset some of the extra weight, I bought a pair of super-light, magnesium hubs from Island Hobbies*; these are 1/4 ounce lighter than the stock hubs.

Assemble the rest of the rear pod as you would the stock 10L pod. Adjust the nuts so that the springs keep the dampener discs against the upper pod plate, and

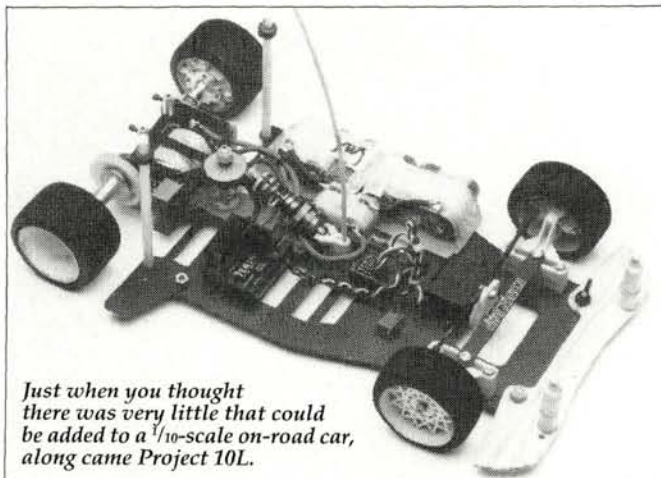
tighten them only until contact is made; over-tightening will restrict the suspension.

The Cheetah instructions recommend that you use an 1/8-inch spacer on the right (gear) side and a 1/2-inch spacer on the left. The T&A axle has a 1/8-inch spacer already on it, so I just used some old axle bushings on the left side. The first kits didn't include spacers, but Carlos Turano, the owner of Cheetah Racing, told me I wasn't the only one who had complained about not having the proper spacers in my spare-parts box. The latest units will include spacers.

When I put the differential back together, I used some products that I'd never used before—with good results: Team Losi* Hard Diff Balls; VRP Lubridiff diff lubricant; and Robinson Racing 100-tooth machined spur gear and Titanium Gold diff rings.

LUBE THE RIGHT THING!

The first time I checked the diff after I'd reassembled it, I was dismayed: it felt gritty and "notchy." I'd applied the



Just when you thought there was very little that could be added to a 1/10-scale on-road car, along came Project 10L.

PROJECT 10L



usual amount of diff lube on each ball, so I was baffled. I called Steve Verona, the owner of VRP, and my problems were solved. Steve explained that, unlike most diff lubes, Lubridiff *should be applied to the rings, not to the diff balls!* Owing to the makeup of the lube, there seems to be too much drag when it's applied directly to the balls. When I applied a light coating of Lubridiff *only* to the rings and re-assembled the diff, it operated extremely smoothly.

I also used new titanium nitride pinion gears, which are lighter than steel gears. Their self-lubricating coating is supposed to have 40 percent less friction, and they should last three to eight times longer. I couldn't tell whether there was any difference, but their gold color is beautiful!

FINISHING TOUCHES

The rest of the 10L is basically the same as when I reviewed it. For this project, I used the new Tekin* 700 Pro Pulse

ESC, which has a unique torque-limiting feature. This adjustment allows you to dial-out wheel spin in slippery conditions. The tiny re-

ceiver is also from Tekin, and its antenna wire is fed through a Paragon* Nimrod. The bright-orange antenna tube goes well with the black, fluo-

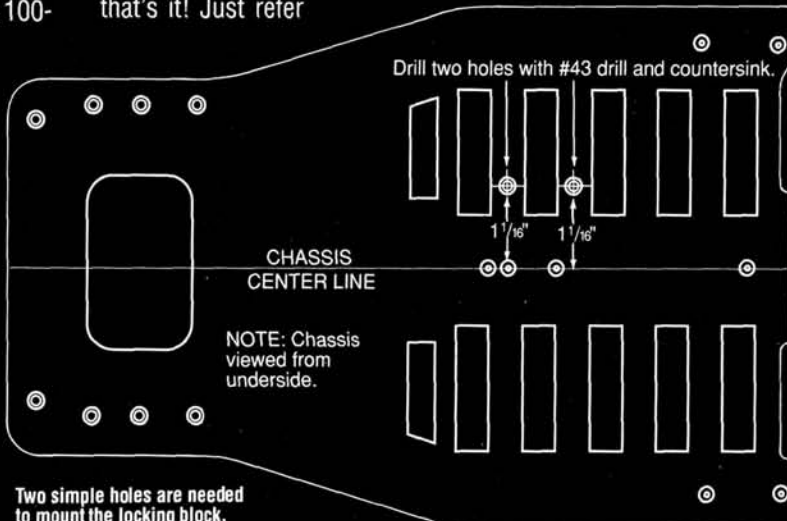
GET GOIN' IN A HURRY

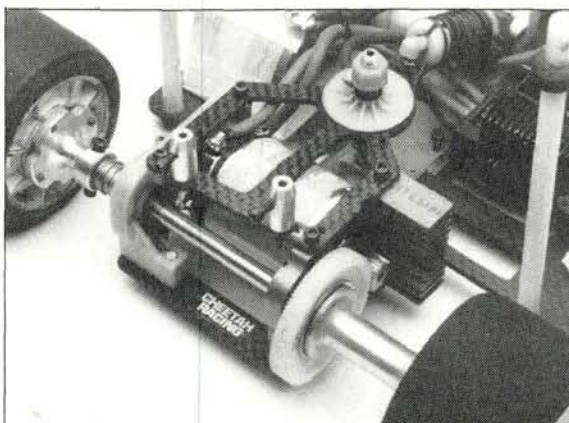
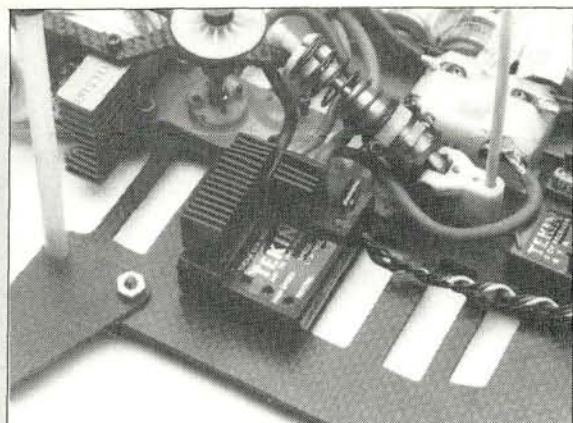
The real test of Project 10L came when R/C World held the Icebreaker 100 at Sugar Hollow Speedway in Danbury, CT. The Icebreaker was a 100-lap superspeedway race, just like the ones at Lake Whippoorwill and the RC Thunderdrome. This first race of the season—at the “unofficial official” Car Action test track—would tell me what I had to know about Project 10L.

To run the 100 laps of the Icebreaker, two pit stops would be needed, so to make the fastest possible

stops, I used the Cheetah Quick-Change kit. Its locking-block installation requires just two holes in the chassis—that's it! Just refer

to the diagram for the mounting-hole location. Assemble the rest of the Quick-Change kit





Left: The Tekin 700 ESC has a torque limiter that allows you to dial-out wheel spin; this is especially helpful when using rubber cap tires. Right: The Cheetah Racing narrow rear end makes the 10L $\frac{3}{4}$ inch narrower than the stock version. A T&A titanium axle, Island Hobbies magnesium hubs and Robinson Racing gears were also added.

Cheetah narrow rear pod is the ease with which bodies can be mounted on the 10L. The rear wheels don't stick out from underneath the body, and this allows a much wider range of body choices.

PERFORMANCE

The first test of Project 10L was at the Invitational Race of Champions at Wilmington R/C Speedway in Wilmington, MA. (See "Hot Tracks" in the June issue of *Car Action*.) I had never raced at this banked, indoor asphalt tri-oval before.

How did the car handle? Well, it sure didn't push anymore! As it turned out, I had to take steering out of it by going with hard tires on the front. This

worked out quite well, because this track is very rough on front tires. I wound up running CKW* orange foams on the front and CKW greens on the rear, and I was able to use the same set of tires all weekend.

The Cheetah narrow rear end does its job by removing the push from the 10L. In fact, it does it almost too well, but this can be controlled easily by adding spacers to the rear to increase rear traction and changing tires. It's far easier to add push than to get rid of it. This project makes the 10L a more versatile race car—a real lean, mean, fighting machine!

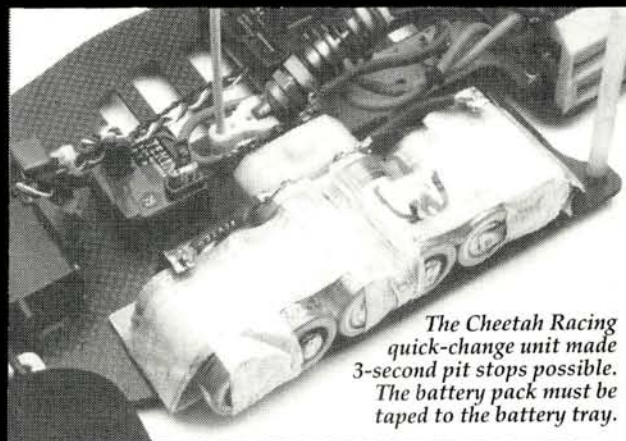
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Paragon Racing Products, 690 Industrial Circle South, Shakopee, MN 55379.
Bolink R/C Cars, 420 Hosea Rd., Lawrenceville, GA 30245.
Pactra Coatings, 1000 Lake Rd., Medina, OH 44256.
CKW, 1889 Commonwealth, Unit 1, Fullerton, CA 92633. ■

rescent-red and silver paint job I gave to the Bolink* Chrysler LeBaron (using Pactra* spray paint). One of the great things about the

according to the instructions, and you'll be all set to make split-second pit stops.

To hook-up the car, on the rear, I used TRC's red dot radials and new NASCAR rims, and I used Hyperbite black dot foams on the front. These "black dots" are made of a very hard compound foam that wear incredibly and offer more traction than orange foam. With this tire combo, I qualified in second position for the 100-lap A-Main.

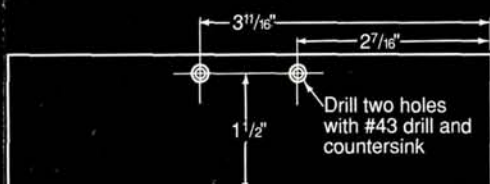
Aided by *Car Action* authors Jim Dahl (my pitman) and Lou Andreko (my spotter), I pi-



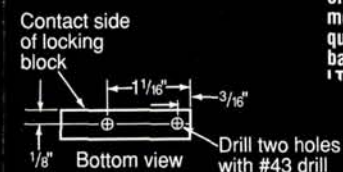
The Cheetah Racing quick-change unit made 3-second pit stops possible. The battery pack must be taped to the battery tray.

lotted Project 10L to a two-lap victory. My advantage seemed to be a combination of good cornering, great power from Bullet Enterprises' matched SCRs and a Twister Pocket Rocket stock motor, lightning-

fast pit stops (without practice!) owing to the Quick-Change kit, and a little help from my friends. Project 10L was a success!



This illustration shows the location of the holes for mounting the quick-change battery tray, 1" style.



Holes must be drilled in the contact side of the locking block to match up with the holes in the chassis.

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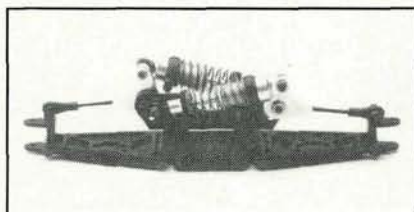
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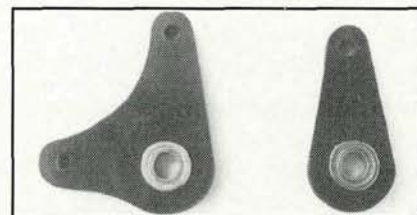


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TRACK DIRECTORY

(Continued from page 172)

NY 500 OFF-ROAD RACE TRACK

110-27 Jamaica Ave., 2nd floor
Richmond Hill, 11418
John Lee (718) 847-2327

THE DRAGON'S LAIR

15 Tieman Road, Scotia 12302
Jay (518) 399-8793

RAPID TRANSIT RACEWAY

2104 Broadway, Schenectady, 12306
(518) 372-0777

REC. R/C RACEWAY

187 Church Ln. and Creamery Rd.,
Stanfordville, NY 12581
Erin Clancy (914) 868-7715

SMALL TORQUE RACERS OF L.I.

24 Horton Dr., Huntington Sta., 11746
George Franz (516) 271-1119

WALLKILL WHEELS

Old General Slicing Bldg. Route 208
Walden, 12586 (914) 778-1413

SCHENECTADY R/C SPEEDWAY & CLUB

955 State St., Schenectady, 12307
Rick Darrah (518) 370-3747

N.E. SCALE CAR AUTO RACING

P.O. Box 118, N. Greece, 14515

NIAGARA HOBBY & CRAFT MART RACE-A-RAMA

3366 Union Road at Walden, Buffalo
Don Schrems (716) 681-1666

WALT'S HOBBY AND CRAFT

4300 W. Genesee St., Syracuse, 13219
(315) 468-6544

R/C WORLD

9110 5th Ave., Brooklyn, 11209
(718) 921-2160

SKANEATELES RC RACEWAY

W. Genesee St., U.S. Rt. 20 Skaneateles 13152
(315) 685-8077 or 685-5185

THE RADIO OPERATED MODEL AUTOMOBILE CLUB OF CENTRAL N.Y.

P.O. Box 93, Cicero, 13039

LAWRENCE RACE PARK

2509 Macedon Ctr. Rd., Palmyra, 14522
(315) 597-6429

N.Y. RADIO OPERATED CARS

Joe Fiero/Larry LaBounty (718) 272-1917

MOD-STOCK RACEWAY

3478 Latta Rd., Rochester, 14612
Tom Gebhart (716) 392-8208

HO/RC RACEWAYS

110 Anderson Ave., Rochester, 14607
Shawn Downey (716) 442-9527

TOY CARS

67 South Main St., Pearl River
(914) 735-0919

MINIATURE GRAND PRIX

2102 W. Genesee St., Syracuse, 13219
Arthur Mason (315) 468-1463

(Continued on page 176)

★ ISLAND HOBBIES & RACEWAY ★

111 BRIDGE ROAD • HAUPPAUGE, NY 11788 • (516) 234-7428 • 1-800-344-9225 (Orders Only)

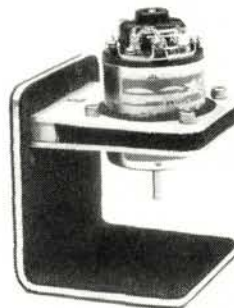
Look At What's
NEW
AND LOW PRICES, TOO!

JRX2 169.95
RC10 w/bearings 189.95
RC10 Graph. w/bearings 199.95
Concept 30 Heli. **Call For Low Price!**
Airplanes! **Call for Low Prices!**
MRP Miss Budweiser Deluxe . . . 169.95

You already know that we've got your parts and a whole lot more. Now, Island Hobbies & Raceway is proud to introduce its new breed of R/C accessories! Tested, tried and true on our own 310-ft. indoor carpeted racing track, you know they're hot because our local racers are using them already in heated competition, and now they're available to the public.

The "Motor Vise" is made of strong aluminum and uses a space-age foam rubber wrapping which holds your motor without screws or clamps which can damage the can, and eliminates motor "walk-away" due to vibration, allowing hands-free operation while working on your motor. **Price: \$14.95**

NEW! MOTOR VISE



WE NOW CARRY HELICOPTERS, PLANES AND CORALLY CARS!

LOW PRICE: \$14.95

D&B RACING

offers to you
"The Unfair Advantage"

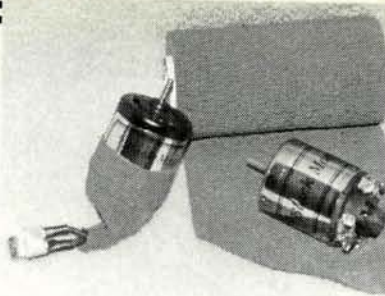
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Modified: \$80. **You pay \$69.95**

Stock: \$28. **You pay \$21.95**

Protect your motors with the best dust and dirt filter on the market—3M Vetwrap.

Comes in a 4"-wide roll and a variety of colors. \$6.95. **You pay \$5.49 a roll**



Available in:
 single, double,
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 for the hottest
 in off-road,
 oval, drag,
 truck-pull
 and on-road
 racing.
 ROAR and
 NR/CTPA
 approved.

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 Suite #522
 Virginia Beach VA 23455

We are also the factory-authorized
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 Terms: certified check, money order
 or COD. Add \$5 p/h.
 COD orders add \$5

Phone: (804) 363-1782
 Fax: (804) 473-0595
 (Dealer inquiries welcome)



TRACK DIRECTORY

(Continued from page 175)

L.I. 1/4-SCALE RACERS

63 Horton Dr., Hunt Sta., 11746
 Joe DePinto (516) 351-5384

TMC R/C CARS & RACEWAY

205 North Ave., Webster, 14580
 Tom McCoy or Mike Sullivan (716) 872-1598

QUEENS OFF-ROAD RACE TRACK

43-32 Kissena Blvd. 7F, Flushing, 11355
 John Lee (718) 539-3589

NORTH CAROLINA

EL TIGRE RACING

1911 F Lejeune Blvd., Jacksonville, 28540
 Jim & Rhonda Harris (919) 577-1943

DIXIE R/C HOBBY SHOP

P.O. Box 135, Ramseur, 27316
 David Spaugh (919) 824-2770

ISLAND RACING HOBBIES INC.

6623 Market St., Wilmington, 28405
 Jim Painter (919) 392-3683/(919) 686-0723

R/C HOBBY WORKSHOP & RACEWAY

1358 Church St., Burlington, 27215
 Dave Guerin (919) 228-6809

JOE'S HOBBY SHOP & RACEWAY

Rt. 2, Box 682B, Bessemer City, 28016
 Joe Setzer (704) 435-2912

(Continued on page 178)

REEDY

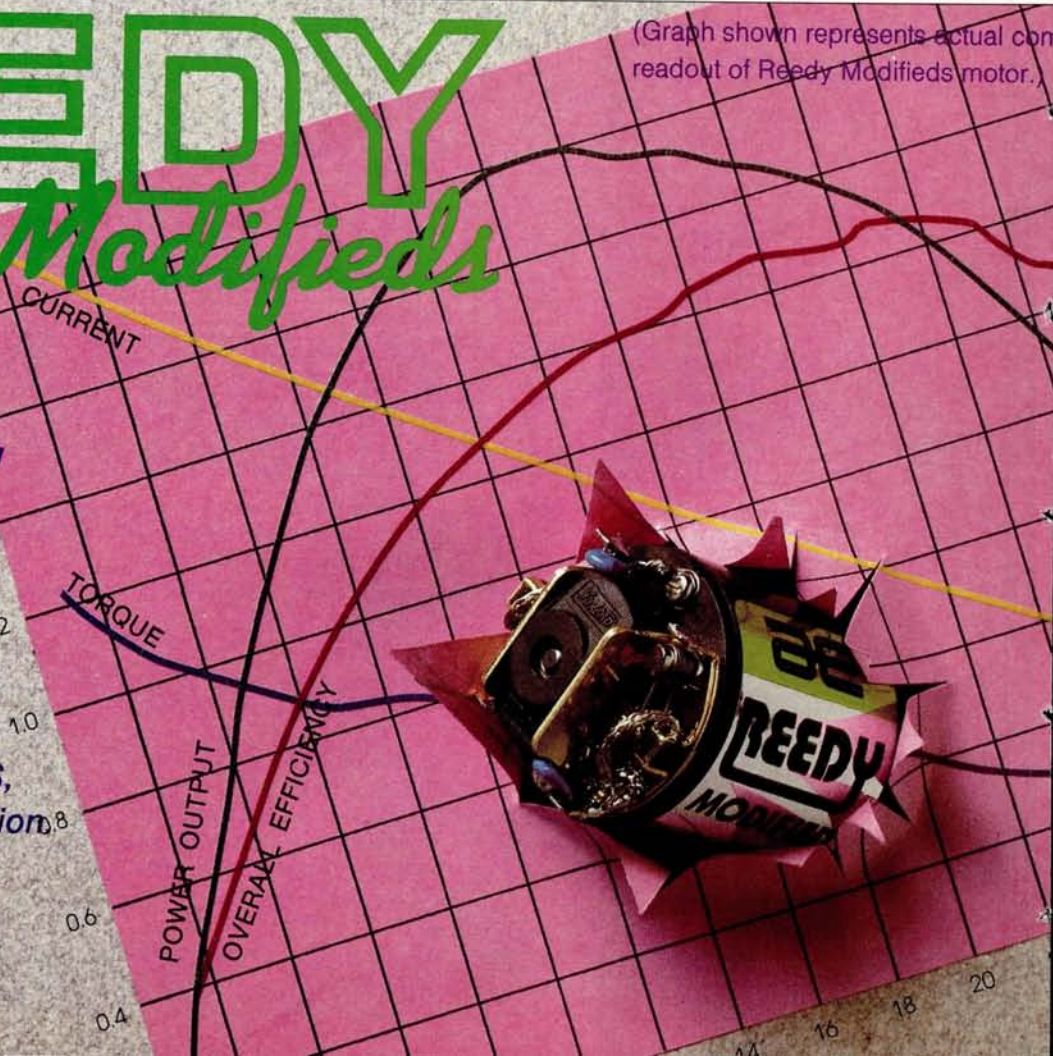
Modifieds

Reedy Modifieds Are Bursting Through With New Technology

Reedy Modifieds uses
 advanced R & D computer
 systems to develop and
 improve motor performance.

Race developed and tested,
 Reedy motors are 4 TIMES
 IFMAR WORLD CHAMPIONS,
 leaping ahead of all competition.

Reedy Modifieds.
The Outburst of
New Technology.



3585 Cadillac Ave.



GRAPHITE ATTACK

When you're out on the track, bashing head-to-head with some serious competition, you've got to have the right equipment in order to win. The new TRX-T Eagle was designed by championship racers, and from the start, has been outfitted with all the lightweight hardware and premium racing accessories you need. For instance, each Eagle graphite chassis is individually molded and sealed. The precision ball differential uses all heavy-duty components and can be externally adjusted in seconds, right on the starting line. The driveline is smooth and efficient with all 48-pitch gears and splined telescoping driveshafts. Ball bearings and turnbuckles are used throughout the truck.

Eagle's suspension geometry has been carefully calculated for responsive steering and zero bump deflection. New longer suspension arms, special axle carriers, and new lightweight offset wheels give Eagle the widest possible race stance for superior stability and handling. Long-body T-6 aluminum racing shocks are used front and rear to provide over 2 inches of suspension travel.

Even before TRX-T Eagle's release, pre-production samples in the hands of Team driver Mike Hamilton, won the Roar Region IV Championship, top qualified at the N.O.R.R.C.A. Midwest Regionals, and won the Trophy Dash! If you're serious about your racing, and even more serious about winning, the TRX-T Eagle is for you.

Copyright TRAXXAS CORP. 1990



SPECIFICATIONS	
TYPE	2WD off-road
CHASSIS	Graphite Composite
SHOCK TOWERS	Graphite Composite
SUSPENSION	Fully independent; upper and lower control links
DAMPENING	High-volume, oil-filled, coil-over, T-6 aluminum long case
WEIGHT	45 oz. (less elec.)
WHEELBASE	280mm
LENGTH	460mm
TRACK WIDTH	311mm
HEIGHT	205mm
GEARS	48-pitch
FINAL DRIVE	4.03:1
DIFFERENTIAL	Adjustable ball type

TRAXXAS

12150 Shiloh Rd. Dallas, TX 75228

TRACK DIRECTORY

(Continued from page 176)

ASHEVILLE HOBBY SPEEDWAY

Highway 25, Naples, 28760
Jack Murdock/Jack Shelton (704) 684-9814

TRIANGLE OFF-ROAD RACING CIRCUIT

New Hope Rd. Ext., Raleigh, 27612
Frank Winslow (919) 872-6997

TRIANGLE RACEWAY

Daniel Boone Ice Rink, Hillsborough
Larry Dew (919) 471-8934

SWEET UNION R/C RACEWAY

388-D Quarry Rd., Monroe, 28110
Eric Rea (704) 289-3621

CLINTON R/C RACEWAY

907-A Warsaw Rd.
Clinton, 28328
Corbitt Marshburn (919) 592-4569

NORTH DAKOTA

BUFFALO CITY ROAD RUNNERS R/C CLUB

Jamestown, 58476
Randy Lynn (701) 285-3353
Gene Martin (701) 252-3941

WILLISTON OFF-ROAD RACERS

115 W. 2nd St., Williston, 58801
Jim Basaraba (701) 572-9313

NORTHERN MINI-RACERS

P.O. Box 415, Minot, 58702
Roger Lee (701) 838-0654 or 839-5294

KOUNTRY KILN HOBBY

Box 247, 324 Railroad Ave. N., Mohall, 58761
Stan Witteman (701) 756-6307

TCRC

Bismark
Bruce Herman (701) 258-3802

VALLEY HOBBIES

Fargo
Bill Neuhauser (701) 235-1272

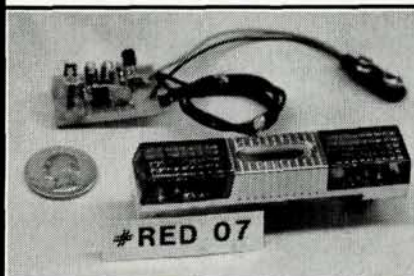
OHIO

THE TRACK ABOVE

3577 S. Arlington, Akron, 44312
(216) 896-4118

(Continued on page 183)

NEW LIGHT BAR w/2 "Revolving" Lights



#RED 07 \$29.95

You Asked For Them!

Ram listens to modelers at R/C shows all over the country and produces what you want! The **#RED 07 Light Bar** is 3 1/2" long, has a chrome base, 2 red lenses and 2 adjustable rate "revolving" lights.

The **#RED 13 Headlights** now let you use our high quality, 1/4" base RAM instrument bulbs in molded grills.

Both systems can use either a 9 volt alkaline battery or your 6 or 7 cell car nicad.

• See Your Dealer • Send Stamped Env. For RAM Info
If unavailable locally send check, money order or full credit card info for the cost of the item plus \$3.00 (\$5.00 foreign) for immediate shipment. Include full address for U.P.S. Sorry no C.O.D.

Ram 4736 N. Milwaukee Ave. — Chicago, IL 60630

NEW HEADLIGHTS for Tamiya etc. Molded Grills



#RED 13 \$8.95

TRACK DIRECTORY

(Continued from page 178)

CARNATION RACEWAY

Duke's Hobby & Cyclery
1166 West Ely St., Alliance, 44601
Mike Duke (216) 823-1006

THE TRACK ABOVE

3577 S. Arlington
Akron, 44312

B.A.R.C.A.R.

Bellevue Rec. Center
Monroe St., Bellevue
(419) 483-7906

ALCAR INTERNATIONAL R/C RACEWAY

33501-A Lake Rd., Avon Lake, 44012
(216) 933-6017

CLEVELAND RADIO RACEWAY

3209 Lorain Ave., Cleveland, 44113
Troy Singer (216) 741-1649
Rick Moore (216) 255-5429

HIGH TECH INTERNATIONAL R/C RACEWAY

116 Taylor Ave., Loveland 45140
Steve Coffey (513) 683-8900

JOHN'S HOBBY SHOP & INDOOR OVAL ASPHALT TRACK

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(614) 455-3025

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P.O. Box 297, Brookfield, 44403
Larry Jennings (216) 448-1573

NORCAR

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C.O.R.C.A.R.

1775 Bairsford Cir. W., Columbus, 43232
John White

N.W. OH RADIO-OPERATED DIRT SPRINTS

906 Eton Rd., Toledo, 43615
Herb Zieman (419) 531-0070

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Toledo
Dave Scanes (419) 893-1916

F.F.A. SPEEDWAY

Wayne County Fairgrounds, Wooster 44676
(216) 264-1848

MARTEL R/C AUTO RACEWAY

4271 Main St., Martel 43335
Randy & Peggy Swihart (419) 845-3172

RICHLAND COUNTY RACEWAY

South Illinois Ave., P.O. Box 2328, Mansfield, 44905
John Rine (419) 589-RACE

OKLAHOMA

R/C AUTO RACING OF TULSA

Dave Cole (918) 745-9898

OREGON

RADIO RACEWAYS

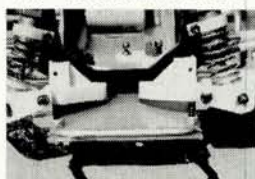
225 Century Dr., Bend, 97701
(503) 389-6160

(Continued on page 195)



**Manufacturer of the
Finest Innovative and
Functional R.C.
Equipment for the
Serious Racer.**

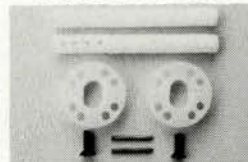
RC=10 CASTER WEDGES



These wedges fit under RC=10 front suspension blocks in sprint cars to add caster and better handling

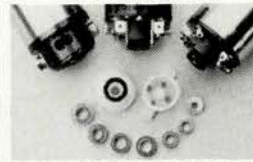
#2016 \$5.00

SWIVEL BODY POSTS



Body post kit with adj. body washer that tilts to copy body contour. Swivel washer has a 1" dia., body posts are hollow, hardware included. Available in 1.5", 2.5" and 4.0" height

BLASTER PLUS



Cleans motor bearings and single bearings (flanged, non-flanged) in seconds. Made of nylon, very small, easy to use. No other bearing cleaning tool does as much for the price.

#2011 \$11.90

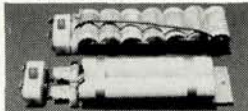
DIFF. CENTERING KIT



Centers cone washer for smooth, even transfer of pressure to all spur gear balls. Allows thrust bearing to roll on hub bearing flange to protect bearing from impact and lateral pressure from adj. nut.

#2002 \$3.00

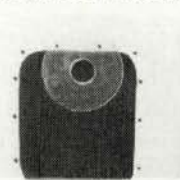
QC/DC BATTERY SYSTEM



Quick connect/disconnect battery system
•Material: Molded Nylon & Fiberglass
•Push Button Ejection System
•Antivibration Spring Loaded Contacts

#2017 (Locking Block, 1 Batt. Plate) \$20.00
#2018 (Spare Batt. Plate, Complete) \$10.00

STICKEM BODY WASHERS



Self stick body washers add strength to body mounting holes and won't get lost.

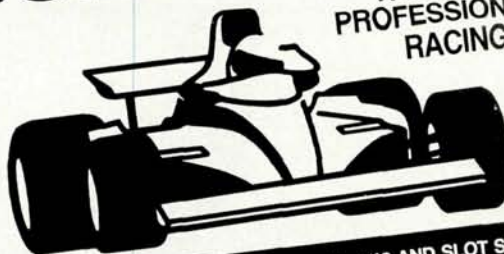
#2025 6 pcs. 2.00

For Latest Catalog Send: \$1.50 plus SASE, size 4" x 9"

CHEETAH RACING, 10823 Amestoy Ave., Granada Hills, CA 91344 (818) 366-2683

UFRA® "BLACK DOTS" COME TO INDY!

THE ULTIMATE IN
PROFESSIONAL QUALITY
RACING TIRES



UFRA® is the ultimate professional quality racing tire made of a revolutionary superior natural sponge rubber compound imported exclusively from Switzerland's UFRA® MODELLISMO by Twinn-K of Indianapolis.

- 1/8, 1/10, 1/12 AND SLOT SIZES ARE AVAILABLE AS "BLACK DOTS" AND "BLACK DOT FOOTPRINTS"
- EXCEPTIONAL LONG-LASTING WEAR
- LOWER ROLLING RESISTANCE - HIGHER SPEEDS
- PRECISION TRUED HOLDING POWER - NO TIRE "HOP"
- EDGE RADIUS PRACTICALLY ELIMINATES CHUNKING
- MAXIMUM TRACTION ON CONCRETE, ASPHALT, CARPET, DIRT AND CLAY
- ENDORSED BY NATIONALLY RATED DRIVERS

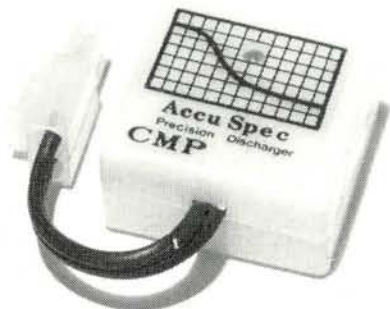
TWINN-K INC.

IF UNAVAILABLE LOCALLY,
CALL TWINN-K FOR PRICE & DELIVERY INFORMATION
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SCALE MODEL RACING TIRES & ACCESSORIES FOR CARS, PLANES & BOATS
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WHAT'S NEW



CMP Accu Spec

Cougar Mountain Products introduces the new Accu Spec series of precision Ni-Cd dischargers. The Accu Spec is a small (1 1/2-inch-square) electronic discharging device that will "soft-discharge" various types of Ni-Cd battery packs down to 1 volt per cell ($\pm .1$ volt). The Accu Spec is available in three models: no. 2801 is designed for 4- to 5-cell packs; no. 2802 is for 6- to 7-cell packs; and no. 2803 is for 8- to 9-cell packs. Your transmitter, receiver and motor Ni-Cd battery packs can be discharged safely and automatically to the proper level without any risk of over-discharging or cell-reversal.

Price: \$15

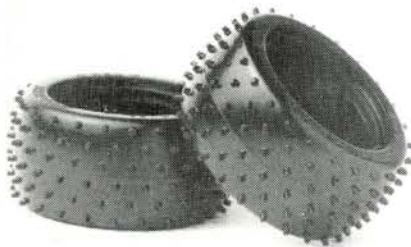


Sentinel

The CMP Sentinel is a small, electronic, voltage-sensing device. Connect it to your 12V auto battery or carry-along 12V battery to recharge Ni-Cd battery packs. The Sentinel tells you when the battery voltage is too low to provide enough charging power. It can be connected by using the color-coded alligator clips provided, and its bright LED indicates low voltage.

Price: \$12.95

For more information, contact Cougar Mountain Products, Inc., P.O. Box 5382, 131 Bound Brook Rd., Parsippany, NJ 07054.



PRO-LINE Race-Engineered Tires

Announcing the newest development of the Pro-Line racing team—Race-Engineered (Red) Tires. These tires combine high-tech rubber compounds and a competition tread design that's geared to the most specific track conditions. They deliver an unmatched performance to R/C racers who want the best.

Price: \$14.95/pair.



Striker III

Why play in the dirt when you can make your mark with Pro-Line's newest development? The Striker III is an on-road specialist with a 1.3-inch-wide flat-track tread for maximum ground contact. With its superior contact and tread design, it's one of the best tires for hard surfaces.

Price: \$9.95/pair

For more information, contact Pro-Line, P.O. Box 456, Beaumont, CA, 92223.



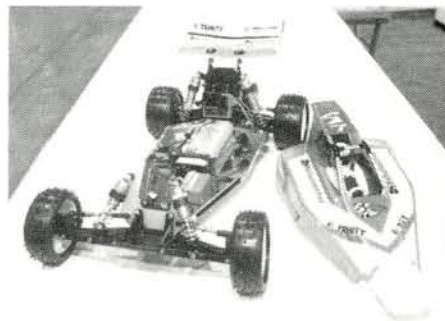
TRINITY Sponsor Sheets

These two new sponsor sheets include the logos of some of the world's most popular companies. You must have them!

Part no. RC9024: NASCAR sponsor sheet (includes NASCAR, STP, Pennzoil, Buick, Trinity and Ford); RC9025: IMSA sponsor sheet (includes Coors, Nissan, Goodyear, Pontiac, Sunoco and Trinity).

Price: \$4.99

For more information, contact Trinity, 1901 E. Linden Ave. #8, Linden, NJ 07036.



SCHUMACHER USA Cougar 2WD Car

Developed by the World Championship-winning team using advanced technology and an innovative design, the Cougar 2WD car is a world class performer right out of the box. Clear, concise instructions and straightforward construction make it great for experts and beginners. This car gives superb handling every time.

For more information, contact Schumacher USA, 1901 E. Linden Ave. #8, Linden, NJ 07036.



PARMA JR-X2 Replacement Body

Parma International introduces a direct-replacement body for the hottest 2WD, 1/10-scale, off-road buggy available—the JR-X2. This body will fit the stock body mounts! Be the first one on your block to have a Lasi car with a different look.

Part no. 10299

Price: \$15 (clear body)



Cyclone II Motors

Parma's Cyclone II Motor Series has landed, and it includes three stock motors and 15 modifieds. Each features thicker, stronger wet magnets; larger heat sinks for greater heat dissipation; and a thicker motor can (with vent holes) to increase magnetic force.

There's a ROAR stock motor and two hotter winds, which aren't legal for ROAR stock racing. Parma also offers five machine-wound motors, two of which have bushings instead of bearings. The T.Q. Series motors come in winds for all forms of R/C action, and all are hand-wound.

Don't be left at the starting line; get your Parma Cyclone II motors today.

Part no. 14100: Cyclone II stock with bushings, \$25; no. 14150: super stock with bushings, \$25; no. 14200: ultra stock with bushings, \$25; no. 14251: pro modified with bushings, \$30; no. 14301: supermodified with bushings, \$45; no. 14351: T.Q. Series with bearings, \$65.

For more information, contact Parma International, 13927 Progress Pkwy., N. Royalton, OH 44133.

TEAM ASSOCIATED

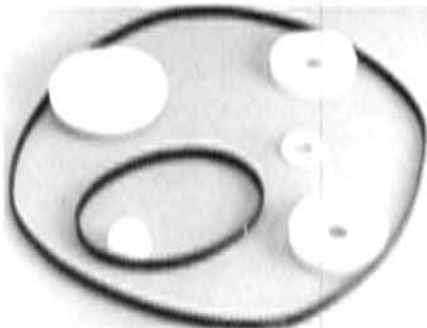


ASSOCIATED ELECTRICS 1/8 Carbide Diff Balls

New from Associated Electrics—1/8-inch carbide diff balls used by the Associated Team in the RC10. The surface of these carbide diff balls is much harder than that of hardened-steel balls, and this makes for silky-smooth differential action.

Part no. 6619

Price: \$8 (8 balls)

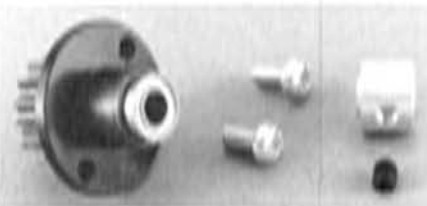


YZ-10 Fine-Pitch Belt-and-Pulley Kit

Fine-pitch belts are the newest craze in 4WD off-roading, where efficiency is the name of the game. This kit comes complete with front and rear fine-pitch belts and machine-drive and differential pulleys.

Part no. ZC6505

Price: \$38



Yokomo YZ-10 Spur-Gear Adapter

This high-performance adapter allows you to use almost every available after-market spur gear, including the new Associated 48-pitch gears. One-way drive bearings have been added, and

they virtually eliminate the risk of losing front-wheel drive, even under the worst conditions.

Part no.: ZC641G

Price: \$50

For more information, contact Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.



BOLINK Motor Capacitor Kit

Bolink now offers a three-piece kit that's designed to help suppress motor noise and interference. It has two small capacitors and one large capacitor, which are required by tracks that use the AMB automatic lap-counting system.

Part no. BL-4258

Price: \$1.50



Pit Apron

Wear this stylish apron when you work on your R/C car or truck. It's Bolink green with a white logo, and it will protect your clothes from stains.

Part no. BL-6079-X

Price: \$15

For more information, contact Bolink, 420 Hosea Rd., Lawrenceville, GA 30245.

WHAT'S NEW



CRAIG MODEL CO. 1/10-Scale Dragster

Craig Model Co. announces its Custom Builders Series 1/10-scale dragster. You can build it or buy it assembled. The SR-1 was this company's first car, and although not an exact copy of the full-size car, the body was considered by *R/C Car Action* to be "a very good replica of Big Daddy's Swamp Rat XXX." This car (which has a Lexan chassis) can compete in the alcohol dragster class (10 cell) and boasts low 2.1 to 2.3 ETs using SCR batteries and pro speed controls. It's also a concours winner. Replacement parts are readily available.

For more information, contact Craig Model Co., 19515 SH 249, P.O. Box 142, Houston, TX 77070.



BUD'S RACING Motor and Axle Shims

These aren't just washers; they're precision motor and axle shims that are ideal for use with ball bearings. All are made of high-quality, burr-free stainless steel. With a small outside diameter, they contact only a bearing's inner race, thus preventing unnecessary drag. To space 1/8-inch axles precisely and regulate motor end play, use no. 3150 (1/8-inch i.d., .002 thick) or no. 3151 (1/8-inch i.d., .014 thick). For spacing front-wheel bearings on the

RC10 or JR-X2 steering blocks, try no. 3155 (3/16-inch i.d., .008 thick). Part no. 3157 (1/4-inch i.d., .014 thick) can be used to space any 1/4-inch axles.

For a complete catalogue, send \$1 and a large SASE (add 45¢ postage).

For more information, contact Bud's Racing Products, 52435 Rte. 113, Dept. RCCA, Wakeman, OH 44889.



McALLISTER RACING Boss

The Boss is back: McAllister Racing now gives us the 1970 Boss Mustang again! It has a super, three-dimensional front end with true scale proportions. If you love muscle cars, you'll want one of these whether you race it or not!

Part no. B136

Price: \$20



MX-Pro

If you've raced R/C cars in the dirt or on pavement, you know the value of a true racing chassis. The MX-Pro has a caster-adjustable beam front end with coil springs; a full-floating rear pod with right or left motor mounts; and a featherweight graphite rear axle with a full-bearing competition diff. Top that off with a 48-pitch spur gear, 2 1/2-inch-high, aluminum front body posts, and you have the ultimate weapon for oval or roadcourse! The MX-Pro is backed by a full line of replacement parts.

Part no. MX-1002

Price: \$215



RC10 Oval Conversion Kit

McAllister Racing introduces a complete kit to convert your stock RC10 into an oval stock car. Available for aluminum or graphite chassis, the kit includes suspension-lowering hardware; front bumper and rear body bracket with body posts; sleek Lumina body; fin material; decals and numbers. Look for McAllister Racing products at hobby shops nationwide.

Part no. A-435 (aluminum RC10); A-436 (graphite RC10).

Price: \$65

For more information, contact McAllister Racing, 2245 First St., Unit 105, Simi Valley, CA 93065.



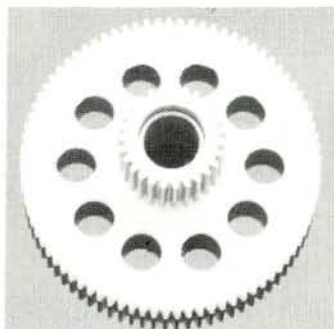
SCALE PRODUCTS Precision Scale

Now you can accurately lighten your car to the legal limit and gain tremendous speed and handling advantages. Scale Products introduces the only affordable precision scale for R/C racing. It can accurately weigh anything from small screws to cars, and it gives a digital read-out in ounces or grams. A built-in calculator (with memory) is included, so you can add and compare weights. All orders are shipped within 24 hours.

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For more information, contact Scale Products, 4504 Mattnick Dr., Bak-ersfield, CA 93313.

WHAT'S NEW



ROBINSON RACING Cluster Gear

Robinson Racing has released its new cluster gears, which are designed for use with the Robinson's Blackfoot ball diff. Available in 72T, 78T and 81T sizes, they make the transmission extremely versatile by allowing almost any combination of motor and gear. This allows for more precise dialing to any track. Each gear is precision-machined to ensure smooth running.

Part no. 5052

Price: \$17.50

For more information, contact Robinson Racing Products, 165 N. Malena Dr., Orange, CA 92669.



MRP Mercedes Group C

Model Racing Products' latest offering in 1/10-scale on-road bodies is the Mercedes Group C. This highly detailed body replicates the unique wedge front end of this winner of the World Sports Prototype Championship. It's made of high-impact polycarbonate and includes a detachable wing.

Price: \$19

For more information, contact MRP, 18676 142nd Ave. NE, Woodinville, WA 98072.



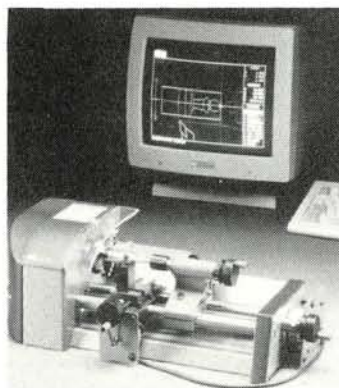
DAHM'S Tuff-E-Nuff Truck Body

The Lexan Tuff-E-Nuff racing-truck body is designed to fit most 1/10-scale monster trucks, and off-road and on-road cars. (It's shown here on the Clod Buster 1/10-scale monster truck.) Tuff-E-Nuff features a swept-back front end, a supercharger with scoop, a sleek cab and a narrow body.

Part no. D190

Price: \$19.98

For more information, contact Dahm's, P.O. Box 360, Cotati, CA 94931.



EMCO MAIER Unimat PC

Emco Maier has introduced the Unimat PC, which is one of the first machines in its class to function as both a manual and a computer-driven lathe. The compact, precise Unimat PC base machine (manual) has electronically variable speed control, a gear quadrant for thread cutting, power feed and a three-jaw lathe chuck and live center. With the addition of the new optional

interface, the Unimat PC provides computerized machining capability. Its benefits include very high accuracy, part-to-part repeatability and program storage flexibility.

Price: \$950 to \$1,600

For more information, contact Emco Maier/Consumer Products Division, 2757 Scotio Parkway, Columbus, OH 43026.



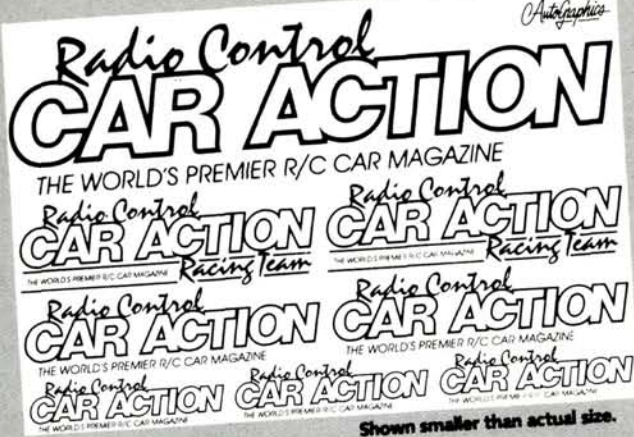
SLAMDUNK RACING Suspension System

Slamdunk Racing Enterprises has devised a crisscross suspension system that uses bearings and bellcranks to provide smooth, friction-free operation. Perfect for dirt and asphalt ovals and off-road tracks, this system allows your shock absorber to function at its full capacity. Set it for off-roading or slam your car or truck as low as you want! Kits are available for the RC10 and the JR-X2/XT. (Kits for other popular cars and trucks will be available soon.) Slamdunk also makes steering systems for the JR-X2/XT and the RC10. These kits also come with bearings, and they'll stand up to the toughest track conditions.

Price: \$39.95 (suspension system); \$29.95 (steering system).

For more information, contact your local hobby shop or Slamdunk Racing Enterprises, 510 Citrus Ave., Imperial Beach, CA 92032.

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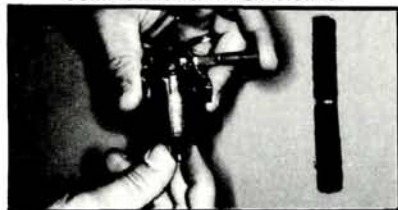
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Here's your chance. We're expanding *Radio Control Car Action* and are looking for additional contributors to help us accomplish this objective. Of key importance are good photographs; the writing we can help you with. Interested? It's much easier than you might think!

Let's hear from you. Send in your article ideas and a few sample photographs. We're looking forward to seeing them.

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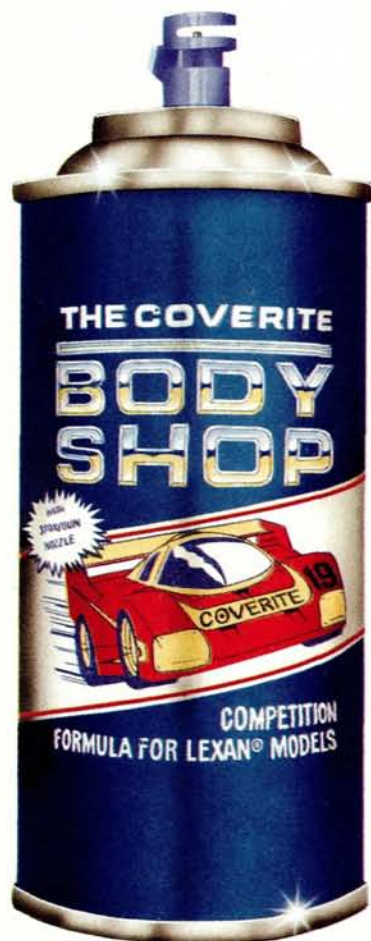
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